



County Borough

of Blackpool.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1909,

BY

E. W. REES JONES,

M.D., D.P.H.,

*Medical Officer of Health, School Medical Officer, and
Medical Superintendent to the Infectious Diseases Hospital.*

Blackpool :

H. MAXWELL & Co., CHURCH STREET.

1910.

HEALTH COMMITTEE,

1909-1910.

Mr. COUNCILLOR FIELDING, J.P. (Mayor).

Mr. COUNCILLOR HAMPSON, J.P., Chairman.

Mr. COUNCILLOR HILL, J.P., Vice-Chairman.

Mr. ALDERMAN T. BICKERSTAFFE, J.P. Mr. ALDERMAN MATHER, J.P.

„ „ HEYES, J.P. „ „ WARD, J.P.

Mr. COUNCILLOR BAMBER

Mr. COUNCILLOR DEWHURST

„ „ BANCROFT, J.P.

„ „ EAVES, J.P.

„ „ BEAN

„ „ ELLIS

„ „ BROWN, J.P.

„ „ GATH

„ „ CARTLEDGE

„ „ HARDMAN

„ „ CHADWICK

„ „ IREDALE, M.B., &c.

„ „ CHARNLEY

„ „ PARKINSON

„ „ COCKER, J.P.

„ „ PRICHARD,

„ „ COLLINS

L.R.C.P., &c.

„ „ DAWSON

„ „ TILLOTSON

MEETINGS:—Usually the third Wednesday of the Month.

HEALTH GENERAL SUB-COMMITTEE.

Mr. COUNCILLOR FIELDING, J.P. (Mayor).

Mr. COUNCILLOR HAMPSON, J.P., Chairman.

Mr. COUNCILLOR HILL, J.P., Vice-Chairman.

Mr. ALDERMAN HEYES, J.P.

Mr. COUNCILLOR BEAN

Mr. COUNCILLOR DEWHURST

„ „ CARTLEDGE

„ „ HARDMAN

„ „ CHADWICK

„ „ PRICHARD,

„ „ CHARNLEY

„ „ L.R.C.P., &c.

SANATORIUM SUB-COMMITTEE.

Mr. COUNCILLOR FIELDING, J.P. (Mayor).

Mr. COUNCILLOR HAMPSON, J.P. (Chairman).

Mr. COUNCILLOR HILL, J.P. (Vice-Chairman).

Mr. COUNCILLOR BROWN, J.P.

Mr. COUNCILLOR IREDALE, M.B., &c.

„ „ CARTLEDGE

„ „ PRICHARD,

L.R.C.P., &c.

*To the Mayor and Council of the County Borough
of Blackpool.*

GENTLEMEN,

I herewith submit for your consideration the Report for the year 1909 on the health and sanitary conditions of the town. As in previous years the Report is divided into four parts :—(1) Vital Statistics, (2) Infectious Diseases (3) General Sanitary work, (4) Meteorology.

The birth-rate of 16.7 per 1,000 was the lowest recorded for the town, and was only 43 per cent. of the rate for the year 1878.

The death-rate (corrected for non-residents) was 12.68 per 1,000, and compared favourably with previous records and with the rates for other large towns. The Infant Mortality rate is at the satisfactorily low figure of 103 per 1,000 births, this being the lowest yet recorded for Blackpool. This represents a great saving of infant life. Up to the year 1901 it was quite the exception to have a rate of Infantile Mortality even as low as 150 ; in fact, the average for the 23 years, 1879 to 1901 inclusive, was 158.

With regard to Infectious Diseases, Measles and Scarlet Fever were prevalent, the latter especially towards the end of the year. The other diseases were much at their usual rate of notification.

The voluntary notification of Phthisis has worked satisfactorily throughout the year. The beneficial results of the system are difficult to demonstrate, but I am able to report to you that all the cases which have come to my knowledge have been instructed either by me or by their own medical attendants what procedure to adopt in order to reduce the risk of infection of others to a minimum.

The supervision of the Abattoirs will be greatly facilitated by the Caretaker's Cottage now in course of erection.

I am pleased to record that plans for combined offices for the Health and Cleansing Departments have been agreed upon by the Corporation, and I trust that next year's Report will be issued from those offices.

I desire to express my appreciation of the work done by the Chief Inspector and Chief Clerk and their respective staffs throughout the year. Their assistance, and the support of the Chairman and Members of the Health Committee, have made my first completed year of office as your Medical Officer of Health one of encouragement and satisfaction.

I have the honour to be, Gentlemen,

Your faithful Servant,

E. W. REES JONES.

27th *June*, 1910.

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County Borough of Blackpool.

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STATISTICAL SUMMARY, 1909.

Situation :—Latitude $53^{\circ} 49'$; Longitude $3^{\circ} 3' W$.

Area of Borough (exclusive of foreshore)	3,495 acres	
Area of foreshore	478 acres	
Population (Census, 1st April, 1901)	47,348 persons	
Persons per House as per Census	4.766	
	1908	1909
Rateable Value (General District Rate).....	£489,120	£498,598
Do. (Borough Rate).....	£499,792	£509,255
Number of Dwelling Houses on Rate Book	12,778	13,194
Do. do. do. empty ...	171	200
Population of Residents estimated at middle of year from number of inhabited houses ..	59,741	61,450
Density of Population (persons per acre)	17.09	17.58
Number of Births	1,048	1,026
Birth Rate (per 1,000 inhabitants)	17.54	16.70
Number of Deaths	881	864
Death Rate (gross, per 1,000 inhabitants)	14.75	14.06
Number of Deaths of Visitors	120	85
Death Rate (corrected for Visitors)	12.74	12.68
Do. (corrected for age and sex distribu- tion ; factor for 1901 Census 1.093) ..	13.92	13.86
No. of Deaths from seven principal Zymotic Diseases	75	71
Zymotic Rate (per 1,000 inhabitants)	1.26	1.16
Do. (corrected for Visitors)	1.12	0.99
Number of Deaths of Children under 1 year of age	144	114
Infantile Mortality (per 1,000 Births)	137.40	111.11
Infantile Mortality (corrected for Visitors)	127.86	103.31

PRELIMINARY.

A circular from the Local Government Board, dated October, 1909, deals with the subject of the Annual Health Reports. It states that these reports being for the information of the Board and County Council as well as the local Council, there should be in each report a detailed statement of all local circumstances, and while these details may seem superfluous for the latter they may often be needed by the former bodies. This circular specifies the following subjects upon which, amongst others, remarks should be made. Physical features, chief occupations, house accommodation, water supply (with special comments on plumbosolvency), milk supply, food supply, sewerage and drainage, scavenging, disposal of sewage, nuisances, bye-laws, sanitary conditions of schools, infectious disease, the control of tuberculosis, infant mortality, medical inspection of school children, vital statistics, &c.

AREA.

The Municipal Borough of Blackpool comprises the township of Layton-with-Warbreck, part of the township of Marton, and that part of the township of Bispham-with-Norbreck known as Bispham Hawes. The following is the area of the Wards exclusive of the foreshore :—Claremont 689 acres, Talbot 540 acres, Bank Hey 49 acres, Brunswick 520 acres, Foxhall 686 acres, and Waterloo 1,011 acres.

DENSITY OF POPULATION.

The mean density of population for the whole Borough is equal to 17.58 persons per acre :—In Claremont Ward it is 15.93 ; Talbot Ward, 24.16 ; Bank Hey Ward, 36.53 ; Brunswick Ward, 19.09 ; Foxhall Ward, 25.67 ; and Waterloo Ward, 8.01.

ELEVATION.

The mean elevation of the Borough is about $28\frac{1}{2}$ feet above sea level, and varies between about 97 feet at Warbreck Hill, and about 9 $\frac{1}{2}$ feet in the field north of Bloomfield Road (West).

II

Blackpool presents the curious condition that the main direction of the natural drainage is away from the sea. Commencing at the north end, there is a depression near the Gynn Inn, not extending far inland, and then the land rises to the top of Warbreck Hill, with a short slope towards the sea, and a longer slope inland. There is a long slope also in a southerly direction to about the Manchester Hotel, where the main sewer outfall is situated. South of this, to the boundary between Blackpool and St. Annes, the surface is very flat, and averages only about 20 feet above sea level. The main natural drainage of the northern part of the Borough is by means of a watercourse, known as the Layton Dyke (for part of its course the boundary between Blackpool and Hardhorn), into Marton Mere, and thence into the Wyre, and thus into the sea at Fleetwood.

GEOLOGY.

The town may be roughly divided into two portions; the first being that north of the Central Station, and having a subsoil of glacial boulder clays, the two beds being separated by sands and shingle, together at Norbreck reaching more than 100 feet in thickness, and resting on an ancient plane of marine denudation cut in the new red marls which, east of Fleetwood are salt bearing, the rock salt being thicker than any in Cheshire. The second, which lies south of the Central Station, consists of peat, lying on the glacial drift. This bed of peat is of varying thickness of 10, 20, or even 30 feet, being overlain with a greater or less thickness of blown sand. North of Blackpool it reappears at Rossall, and is associated with a submerged forest.

The boulder clay subsoil extends beneath Claremont, Talbot, Bank Hey, and a portion of Brunswick Ward, and also the easterly portion of Foxhall Ward. The portion of Brunswick Ward from the Central Station to Princess Street, and to a short distance east of the coast railway line, has a peaty subsoil, which, in this locality, comes nearly to the surface, and is of variable depth, rendering the ground very treacherous in places. The remainder of Foxhall and Waterloo Wards has a good depth of blown sand overlying the peat, except in isolated places. In parts of this portion of the Borough the sand is very fine, and in the ground it has almost the consistency of mortar.

SEWERAGE.

The District is drained as follows :—

(i) By the chief system of sewers which drains by gravitation the Borough except those portions mentioned below. This empties into a large sewer chamber, under Rigby Road and Tyldesley Road, which is egg-shaped, being thirteen feet in vertical diameter, and nine feet across at its widest part.

The Lytham Road Sewer, which is, for about one-third of its length at the lower end a 3ft. by 2ft. 6in. brick culvert, and at its upper end a pipe sewer varying from 15in. to 12in., enters this chamber from the south, and the Bonny Street culvert enters it from the north, as well as the old culvert beneath the Promenade, whilst the inland main sewer empties into it from the east.

(ii) A small sewerage system which carries the sewerage from Little Layton by gravitation into a tank situated in a field east of the Cemetery, whence it is pumped daily into the terminus of the inland main sewer in Layton Lane, down which it flows by gravitation.

(iii) The drainage from the district east of the portion of Lytham Road south of the South Shore Station, and east of the railway line south of the Destructor, extending inland to Middle Lane and Central Drive, flows by gravitation to a tank at the Destructor, whence it is pumped into a new sewer chamber under the extension of Rigby Road, connected to the old one, whence sewage can flow by gravitation to the sea.

(iv.) The district east of Middle Lane and south of Waterloo Road is drained by gravitation to a pumping station at the corner of Waterloo Road and Bloomfield Road, whence it is pumped into the tank at the Destructor mentioned under (iii).

Iron and steel outfall pipes, each three feet in diameter, are laid down seawards for a distance of 950 lineal yards from high-water mark, the sewage being discharged through the northerly pipe, and the Spen

Dyke surface water being discharged through the southerly one. Valves fixed in a pen-stock chamber beneath the Promenade, serve to keep all sea water from the sewage chambers and sewers whilst the outfall is tide-locked. Sewage is discharged immediately the level of the sea is below the level of the sewage in the storage chamber, until $1\frac{1}{2}$ hours before time of low water, when the valves are again closed. Both the Sewer outfall and the Spen Dyke surface water outfall terminate sea-ward, at a depth of about five feet below the lowest level of low water of a high spring tide.

During the re-construction of the penstock chamber necessitated by the widening of the Promenade, storm overflow pipes were provided to relieve the sewage chambers during heavy rains with an incoming tide, and also a pumping chamber, if required, for use when the sewerage system is full at high tide.

(v.) A smaller system takes the sewage from a portion of Claremont Park, and from an estate in Claremont Ward, which contains Cheltenham, Chesterfield, Clifford, Carshalton, and Handsworth Roads, etc., and also from a portion of the Gynn Estate, outside the Borough in the district of Bispham. This sewage flows by gravitation to an outfall at the Gynn, which extends seawards to a distance of 440 yards, sewage discharging at all states of the tide.

SEWER VENTILATION.

There is no complete system of Sewer Ventilation in the Borough, but I am informed by the Borough Surveyor that a commencement has been made with a system of ventilating the sewers by means of tall columns 30 to 40 feet in height, placed at intervals of about 200 yards, and in such positions as not to be a nuisance or injurious to the inhabitants of adjacent houses. Practically all the surface ventilators have been closed.

COLLECTION OF EXCRETA AND HOUSEHOLD REFUSE.

Blackpool is almost entirely a water carriage town. There are no cesspools or pail closets or privies in any of the inhabited parts, but on the outskirts there are a few of these. On the extension of the sewerage

system they are being gradually abolished. The cesspools and privies are emptied and cleaned at least once a week in all parts of the Borough where they exist, while those in connection with the Fair Ground are emptied daily during the season.

With regard to household refuse, galvanised iron bins with tight-fitting covers are the most satisfactory of all forms of receptacles, and these are the forms which are being encouraged by my department. I am informed by the Cleansing Superintendent that during the season a daily collection was carried out at the Hotels, Hydros, Restaurants, and the larger Boarding Houses, whilst from the ordinary Company-houses, the refuse is removed from two to three times a week. With a slight modification requisite for meeting the reduced demand in connection with company-houses, this system is maintained during the winter months. The refuse collected is dealt with at the Destructor, and during the year 19,562 tons were destroyed.

WATER SUPPLY.

This is under the jurisdiction of the Fylde Water Board, a body composed of representatives from Blackpool, Lytham, St. Annes, and Fleetwood. The water is now laid on to every inhabited part of the Borough, and is an upland surface water derived from the Bleasdale and Grizedale Fells. The gathering ground is a good one, but the water derived from it is soft and of a peaty nature, and occasionally contains a certain amount of sediment, detracting from its appearance. This is particularly likely to occur in streets where the branch pipes supply come to a dead end, and sometimes complaints are received (from occupiers of houses in such streets) of the sediment in the water. The trouble could probably be entirely obviated by more frequent flushing of such branch supply pipes.

As is well known, soft upland surface water of this nature, especially if containing peaty matter, is liable to act on lead pipes and thus cause contamination of the water by lead, and this is apt to occur to a slight extent with the Fylde water. There is absolutely no danger to health likely to arise from this cause, provided occupiers of

houses would take the precaution of making sure that the first water drawn off in the morning is not used for drinking or culinary purposes. It is only the water which has been standing all night in contact with the lead house service pipes which is likely to be contaminated.

During 1903, the Fylde Water Board commenced to make an immense new reservoir on their property, near the gathering grounds, which will largely increase the reserve stock of water available during any prolonged drought, and which should render the Fylde District secure from any chance of water famine for many years to come. This reservoir is estimated to cost £137,727, and to contain when completed 332 million gallons.

REPORT.

PART I.—VITAL STATISTICS.

POPULATION.

The population of Blackpool for 1909 is estimated to be 61,450. This figure is obtained by multiplying the number of inhabited houses in the middle of the year by the average number of residents per house (4.76) as obtained at the last census. The usual method of calculating populations, viz., by assuming that the rate of increase during the decennium 1890-1901 had continued up to the present, would give a figure of 83,379 for Blackpool, which is undoubtedly too high.

As has been pointed out repeatedly in previous reports, the two difficulties met with in estimating the population of Blackpool are (1) the lengthening interval since last census, and (2) the variation in the population according to the period of the year. It is now nine years since the last census was taken, and a draft Bill has already been issued authorising a census next year. It is advocated that decennial censuses should be replaced by quinquennial ones. More accurate vital statistics would thus be obtained, and therefore better opportunity offered for judging of the effect of sanitary administration. Representations are being made to the Government by various Societies urging the quinquennial census.

Further reference will be made to the variation in the population owing to the influx of visitors, in the portion dealing with the death-rate.

I am indebted to the Borough Treasurer for supplying me with information as to the number of inhabited and uninhabited houses in each of the Wards during the autumn enumeration, lasting from the 17th to the 25th of November, 1909. The figures are as follows :—

WARD.	NUMBER OF HOUSES.		
	Empty	Inhabited.	Total.
Claremont.....	24	2,316	2,340
Talbot	27	2,683	2,710
Bank Hey	6	371	377
Brunswick	34	2,079	2,113
Foxhall	62	3,820	3,882
Waterloo.....	47	1,725	1,772
Totals	200	12,994	13,194

From these figures, the Ward populations, calculated on an average of 4.76 persons per house, and reduced to the middle of the year, are as follows :—

Claremont	10,976
Talbot	13,047
Bank Hey	1,790
Brunswick	9,929
Foxhall	17,612
Waterloo	8,096
Total	<u>61,450</u>

The annual increases in population since the last census are as follow :—

PERIOD.	Increase in estimated Population.
June, 1901, to June, 1902 ...	1,424
June, 1902, to June, 1903 ...	841
June, 1903, to June, 1904 ...	1,323
June, 1904, to June, 1905 ...	1,374
June, 1905, to June, 1906 ...	1,403
June, 1906, to June, 1907 ...	1,316
June, 1907, to June, 1908 ...	1,310
June, 1908, to June, 1909 ...	1,709

It is satisfactory to notice that the increase during the last period is considerably in excess of the increase in any previous period. There were 29 more uninhabited houses in November, 1909, than in November, 1908, but this is more than accounted for by the large number of houses built during that period, viz., 416. While the number of uninhabited houses is 29 in excess, the number of inhabited houses is 387 in excess of the previous period.

BIRTHS.

During the year 1,026 births were registered, including 17 in the Kirkham Workhouse. These, divided into males and females for the four quarters of the year, are as follow :—

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.
Males	151	131	135	110	527
Females...	131	134	118	116	499
Total	282	265	253	226	1,026

The birth-rate for the year on the gross population was 16.70 per 1,000. This is only 43 per cent. of the birth-rate for 1878 and is the lowest recorded for Blackpool, the

nearest approach being 17.54 in 1908.

This rate compares with the other divisions of the country as follows :—

England and Wales	25.6	per 1,000.
76 Great Towns	25.7	„
143 Smaller Towns.....	24.8	„
Rural England and Wales	25.6	„
Blackpool	16.7	„

The birth-rate, not only of Blackpool, but of all other towns of England and Wales, and, indeed, of almost all civilised communities, is steadily declining. The need, therefore, of persevering in all known methods of improving the chances of viability of children becomes more and more urgent. The methods adopted are increasing year by year, and advice on feeding and rearing of Infants is now supplemented by the Medical Inspection of School Children. The problem of a decreasing birth-rate is not such a formidable one if a larger percentage of children who are born run the gauntlet of infantile and childish ailments, and eventually produce a healthier race.

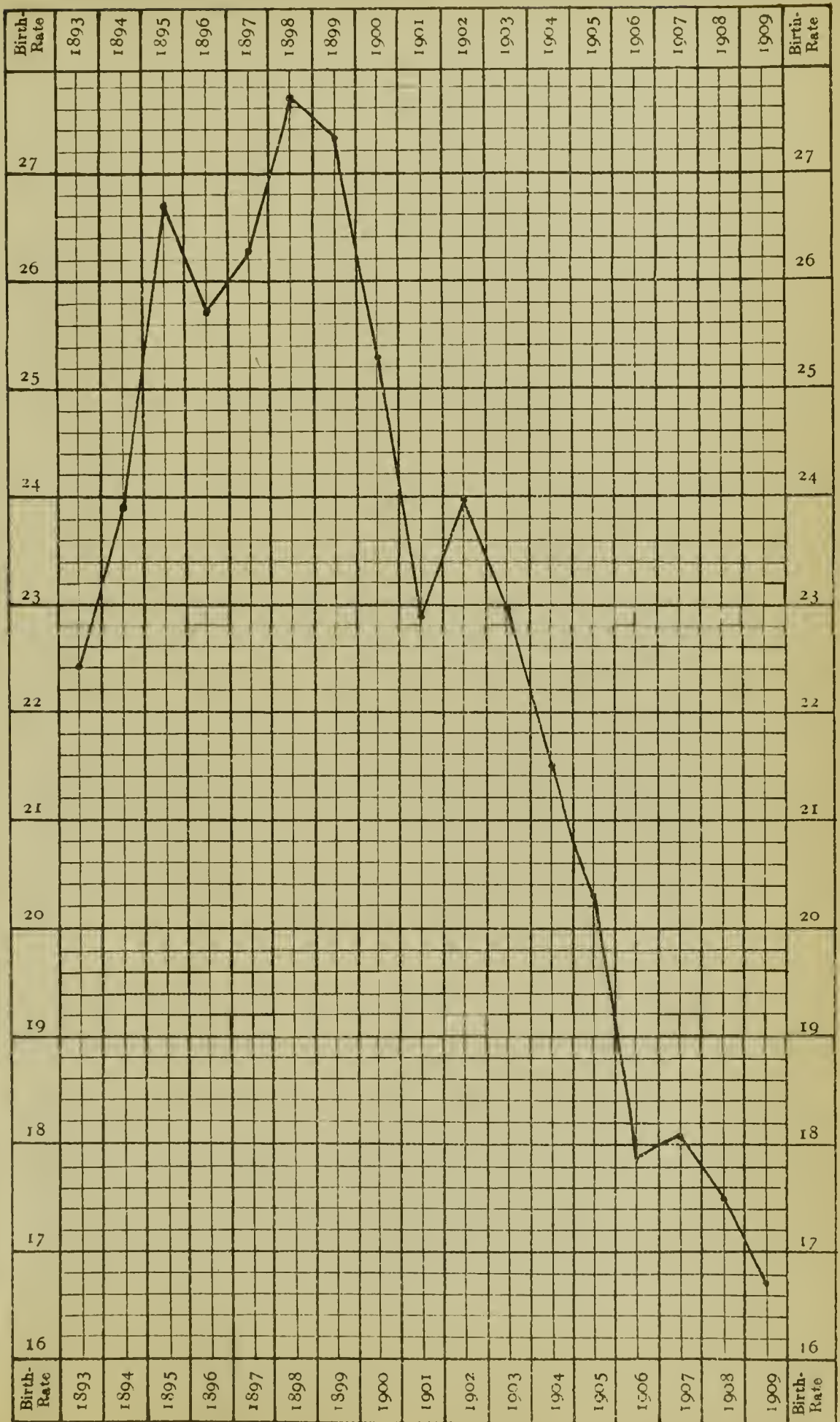
It will be observed that the birth-rate of Blackpool is considerably below that of any other representative division of England and Wales. This discrepancy is more apparent than real, for the constituent population of Blackpool and a few similar towns differs considerably from that of other towns. A true comparison of birth-rates of different communities can only be made when based upon the actual number of married women of child-bearing age (20 to 45) in each community, and this number cannot be obtained owing to the long period which has elapsed since the last census. Considering the nature of the staple industry of Blackpool, it cannot be doubted that the proportion of married women

of 20 to 45 years of age is smaller than in other industrial towns, and therefore the birth-rate, when based on the aggregate population, appears to be low.

The earliest recorded birth-rate which I have of Blackpool is for the year 1878, when, with a population of 13,000, there was a rate of 38.8. I have prepared a table, based on the same lines as a table in the Annual Report of the Registrar-General for the year 1907. The rate for 1878 is taken as a standard and is called 100, and the subsequent years are given as percentages compared with this year, 1878 :—

Period.	Birth rate Blackpool.	Birth rate Blackpool compared with rate for 1878 taken as 100	Birth rate England and Wales.	Birth Rate England and Wales compared with rate for 1878, taken as 100.
1878	38.8	100	35.6	100
1879	36.6	94.3	34.7	97.5
1880	34.0	87.6	34.2	96.1
1881	30.6	78.9	33.9	95.2
1882	30.0	77.3	33.8	94.9
1883	30.0	77.3	33.5	94.1
1884	29.8	76.8	33.6	94.3
1885	27.4	70.6	32.9	92.4
1886	25.9	66.8	32.8	92.1
1887	25.3	65.2	31.9	89.6
1888	24.5	63.1	31.2	87.6
1889	26.5	68.3	31.1	87.4
1890	23.7	61.1	30.2	84.8
1891	22.3	57.5	31.4	88.2
1892	24.0	61.9	30.4	85.4
1893	22.4	57.7	30.7	86.2
1894	23.9	61.6	29.6	83.1
1895	26.7	68.8	30.3	85.1
1896	25.7	66.2	29.6	83.1
1897	26.25	67.7	29.6	83.1
1898	27.74	71.5	29.3	82.3
1899	27.34	70.5	29.1	81.7
1900	25.27	65.1	28.7	80.6
1901	22.90	59.0	28.5	80.1
1902	23.96	61.8	28.5	80.1
1903	22.97	59.2	28.4	79.8
1904	21.53	55.5	27.9	78.4
1905	20.30	52.3	27.2	76.4
1906	17.91	46.2	27.1	76.1
1907	18.09	46.6	26.3	73.9
1908	17.54	45.2	26.2	73.6
1909	16.70	43.0	25.6	71.9

1893—1909.



ILLEGITIMATE BIRTH RATE.

There were 83 illegitimate children born during the year, including 15 at the Kirkham Workhouse. This figure gives the following rates :—

- (1) 1.35 per 1,000 of the inhabitants.
- (2) 5.50 per 1,000 females of conceptive age.*
- (3) 8.09 per cent. of the total births.

These figures for the past few years have been as follows :—

	1909	1908	1907	1906	1905	1904	1903	1902	1901
	—	—	—	—	—	—	—	—	—
(1)	1.35	1.14	1.08	1.14	1.24	1.34	1.14	1.11	1.50
(2)	5.50	4.64	4.39	4.64	5.05	5.47	5.38	4.53	7.33
(3)	8.09	6.49	5.96	6.35	6.10	6.24	5.75	4.64	6.54

The second figure, *i.e.*, the proportion of illegitimate births to women at conceptive ages is the one which represents best the progress of illegitimacy in the country.

*Calculated on there being 15,084 females at child-bearing age—20 to 45.

DEATHS.

The prevalence of death being an indication of the standard of health, it is of importance to obtain an accurate death-rate, and one which can be compared with previous years and with other parts of the country. The difficulty of obtaining such a rate in Blackpool has been demonstrated in many previous annual health reports. The population varies considerably during different portions of the year,

being about 62,000 in winter, and 200,000 in the height of summer. It would obviously be unfair to attribute the deaths which would occur among the latter number to the resident winter population in estimating the death-rate. Enquiries, therefore, are made into each death which occurs, and the deaths of only the residents, *i.e.*, the 62,000, are included in estimating the rate, while the deaths of people only temporarily resident in the town are not included. Having obtained this rate, a further correction is necessary, and it has to be multiplied by the "factor for correction," which is a figure of 1.093. In comparing death-rates of different communities, it is not sufficient to take into consideration merely the population as regards size. The constitution of the population has also to be considered, for, if one community has a larger proportion of very young and very old people than another, obviously it will have a higher death-rate, yet it may be quite as healthy, therefore each population has to undergo a certain correction in order that it may be compared with another. The "factor for correction" for Blackpool corrects the age and sex discrepancy and brings the death-rate to a true comparison with that for England and Wales. Thus the rate for Blackpool for 1909 was 13.86 per 1,000, and compares with other portions of the country as follows:—

England and Wales	14.5
76 Great Towns	15.6
143 Smaller Towns	14.5
Rural England and Wales ...	13.6
Blackpool	13.86

DEATH-RATES, 1893-1909.

Gross Death-Rate

Nett Death-Rate

The number of deaths registered was 834, and of these 85 were non-residents.



There were 24 deaths of residents in Kirkham Workhouse, and of 7 residents who died away from Blackpool, whose deaths were notified to me by the Medical Officer of Health of the districts in which these deaths occurred.

The deaths of the 85 non-residents mentioned above include 8 cases which died in the Victoria Hospital. These deaths have been notified to the Medical Officers of Health of the districts from which they came.

The deaths divided into Males and Females and Residents and Non-Residents for the four quarters of the year were as follows :—

		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Totals.	
Males ...	Residents	112	96	79	113	400	447
	Non-Residents .	6	19	18	4	47	
Females	Residents	138	87	80	74	379	417
	Non-Residents .	6	10	17	5	38	
	Totals	262	212	194	196	864	864

The Ward statistics with regard to deaths and death-rates are as follow :—(the rates for the previous year being included for the sake of comparison).

WARDS.	Estimated Population.	Number of Deaths (Residents).	Death Rate 1909	Death Rate 1908
Claremont.....	10,976	136	12.39	10.67
Talbot	13,047	207	15.87	14.84
Bank Hey	1,790	20	11.17	10.09
Brunswick	9,929	126	12.69	12.00
Foxhall	17,612	206	11.70	13.09
Waterloo.....	8,096	84	10.38	12.79

The number of deaths at various ages and the percentage of the total deaths is as follows :—

Age period.	Number of deaths	Percentage of total deaths.
Under 12 months...	114	13.19
1 and under 5 years.	56	6.48
5 and under 65 years	446	51.62
65 years and over ...	248	28.70

More details of this character will be found in Table IV. The proportions of males and females living at different ages are presumed to be the same as those recorded at the 1901 census, but the period of time which has elapsed since that census, and the variations in the birth and death rates render the estimation somewhat unreliable.

TABLE IV.

POPULATION AND DEATH-RATES (RESIDENTS),
AT VARIOUS AGES.

BLACKPOOL, 1909.										England and Wales 1891-01	England and Wales 1891-01
	Per cent. of population living at various ages (1901 census)		Number estimated living in 1909		Total Deaths		Death Rate		Death Rates of persons at different ages.	Death Rates of males living at different ages.	Death Rates of females living at different ages.
	Males	Females	Males	Females	Males	F'mls	Males	Females			
Under 5 years	5.01	5.32	3,080	3,270	84	72	27.27	22.02	24.57	62.11	52.33
5-15 "	8.22	9.04	5,051	5,557	17	27	3.37	4.86	4.15	3.32	3.42
15-25 "	8.01	10.96	4,920	6,732	18	11	3.66	1.63	2.49	4.35	3.95
25-35 "	8.20	10.60	5,041	6,514	23	23	4.56	3.53	3.98	6.60	5.93
35-45 "	6.14	7.80	3,773	4,795	32	37	8.48	7.72	8.05	11.24	9.38
45-55 "	4.37	5.80	2,684	3,565	50	45	18.63	12.62	15.20	18.53	14.44
55-65 "	2.88	3.99	1,772	2,449	66	51	37.25	20.82	27.72	34.24	27.79
65-75 "	1.08	1.74	662	1,067	77	59	116.31	55.30	78.66	69.06	59.35
75-85 "	0.31	0.47	189	291	27	45	142.86	154.64	150.00	143.32	128.11
85 and upwards	0.02	0.04	12	26	6	9	500.00	346.15	394.74	281.82	256.14

Of the 864 gross deaths in 1909, the causes of 796 or 92.13 per cent. were certified by medical practitioners. Inquests were held respecting 39, or 4.51 per cent., whilst the remaining 29, or 3.36 per cent., were uncertified. These figures compare with previous years as follows :—

	Certified by Medical Practitioner.		Inquest Cases.		Uncertified Cases.	
	Total.	Per cent. of total.	Total.	Per cent. of total.	Total.	Per cent. of total.
1901.....	766	90.44	45	5.31	36	4.25
1902.....	735	92.34	39	4.90	22	2.76
1903.....	723	89.92	38	4.73	43	5.35
1904.....	718	89.53	47	5.86	37	4.61
1905.....	741	91.59	37	4.57	31	3.83
1906.....	738	90.89	53	6.53	21	2.59
1907.....	729	92.51	37	4.70	22	2.79
1908.....	815	92.51	45	5.11	21	2.38
1909.....	796	92.13	39	4.51	29	3.36

CAUSES OF DEATHS.

According to the groups of diseases the following deaths occurred :—

	No. of deaths.	Percentage of Total Deaths.
Specific Febrile or Zymotic Diseases	167	19.33
Parasitic	1	0.11
Dictetic	3	0.35
Constitutional	90	10.42
Developmental	73	8.45
Local	462	53.47
Deaths from Violence	31	3.59
Other causes	37	4.28

These deaths, divided into age groups, into residents and visitors, and into males and females, are seen on the Table on pages 52-62.

SYPHILIS accounted for two deaths, a male between the ages of 45 and 55 and a female under one year. The former was probably an acquired form of the disease and the latter hereditary. This disease still continues to claim a small number of deaths year by year ; thus in 1908 there was one female under one, in 1907 one female under one, in 1906 three males and three females all under one, in 1905 one female under one and one male between 35 and 45 years, and in 1903 one male under one. A particularly sad point observed in considering this disease is that of the 13 deaths which have occurred in this town since 1903, 11 of them have been infants under one year of age, and in whom the disease had been transmitted from the parents. The hereditary transmission of disease is a subject of wide interest, and all the theories put forward have been assailed. An Annual Health Report such as this, is not the place to air any particular views on the subject, and it matters not much whether the disease is part and parcel of the offspring as it is of the parent, or whether the offspring has been infected by the parent before or immediately after birth, the fact remains that 11 infants have innocently suffered from and died from the disease.

ALCOHOLISM has been certified as the cause of death of 3 persons—2 males and 1 female. There are doubtless other cases in which this has been directly or indirectly the cause of death ; thus Chronic Alcoholism is the chief cause of Cirrhosis of the Liver which has caused 9 deaths. It weakens the system when battling against such diseases as Phthisis and Rheumatism, and people under its influence have less fear of the risk of venereal diseases. The value of alcohol as a food and as a stimulant has in past years been

highly over-rated. As a temporary stimulant, alcohol may have a slight value in a few cases, yet on the whole it kills many more than it cures.

RHEUMATISM AND RHEUMATIC FEVER.—There was one death from the former and one from the latter in Blackpool last year. The records of deaths from this disease for a series of years will have much interest in a Health Resort. They are as follows :—

	Rheumatism.	Rheumatic Fever.
	—	—
1909.....	I	I
1908.....	2	3
1907.....	2	4
1906.....	2	I
1905.....	2	5
1904.....	I	I
1903.....	—	2
1902.....	I	3
1901.....	I	4
1900.....	I	3

These figures are in no way excessive or above the average for a town of the size of Blackpool, and comparisons with other towns of a similar size which are supposed to be better for rheumatic conditions generally will be found to be favourable. The soil on which houses are built is said to have an influence on the incidence of the disease, but how this comes about is not very clear. Clayey soils retain more moisture than do gravelly ones, and do not dry as quickly, but if the following conditions are carried out there is no reason why the houses built on clayey soil should be

dampener :—(1) site of house drained with agricultural field drains, (2) the site well concreted, (3) the walls protected by a reliable damp-proof course, and (4) the cavity under the floor well ventilated. Dampness of a house is deleterious to all conditions of ill-health, and especially to rheumatism, and its allied conditions, and should be guarded against by the rigid carrying out of the Building Byelaws. All conditions which tend to improve the general health also tend to minimise the incidence of Rheumatoid diseases, and therefore, what should be aimed at in addition to medicinal treatment are—purity of atmosphere, plenty of fresh air, nutritious foods, which should be of the vegetable nature, and bodily warmth.

CANCER was the cause of 61 deaths, which is the highest figure yet recorded for Blackpool. 24 of these were males and 37 females, and of the 37 females 2 were visitors. I here reproduce a Table which appeared on page 52 of the 1907 Health Report, and with the 1908 and 1909 figures added :—

CANCER MORTALITY IN BLACKPOOL.

YEAR.	Total Deaths	Deaths of Visitors.	Gross Death Rate	Nett Death Rate	England and Wales.
1895	19	3	0.577	0.486	0.753
1896	20	3	0.546	0.464	0.762
1897	33	3	0.820	0.746	0.785
1898	29	7	0.638	0.484	0.799
1899	36	2	0.747	0.705	0.826
1900	49	2	0.976	0.937	0.829
1901	59	5	1.162	1.064	0.842
1902	51	4	0.977	0.901	0.844
1903	55	3	1.037	0.981	0.872
1904	51	10	0.938	0.755	0.877
1905	58	4	1.041	0.969	0.885
1906	59	5	1.033	0.946	0.917
1907	57	5	0.975	0.890	0.909
1908	60	9	1.004	0.854	0.923
1909	61	2	0.993	0.960	—

The parts of the body affected with the disease were as follows :—

	Males.	Females.	Total.
Stomach	4	4	8
Liver	3	4	7
Breast	—	5	5
Bowels	2	8	10
Pancreas	1	1	2
Urinary Organs.....	4	—	4
Generative Organs	—	7	7
Respiratory Organs	4	1	5
Rectum	1	2	3
Tongue	—	—	—
Other sites	5	5	10
Total	24	37	61

and the deaths occurred in the following age groups :—

0 to 1, 1 case.
 15 to 25, 1 case.
 25 to 35, 2 cases.
 35 to 45, 7 cases.
 45 to 55, 16 cases.
 55 to 65, 19 cases.
 65 to 75, 10 cases.
 75 and over, 5 cases.

Enquiries have been made into the family history of the cases, and the following results were obtained :—

7 cases—Brother or sister died of cancer.
 1 „ Mother „ „ „
 1 „ Mother and sister „ „ „
 3 „ Grandmother „ „ „
 1 „ Daughter „ „ „
 1 „ Aunt „ „ „
 1 „ Husband „ „ „
 6 „ No information
 40 „ No family history of cancer

Offers of disinfection have been made in all the cases, but in 10 only was disinfection by the Health Authority accepted. In the other cases it was done by the occupiers.

DIABETES AND GLYCOSURIA.—19 deaths were registered from these causes, 8 of which were males and 11 females, 4 of the females being visitors.

The age groups of these cases were :—

Age.	Males.	Females.
25 to 35 years	—	2
35 to 45 years	—	2
45 to 55 years	1	1
55 to 65 years	4	2
65 to 75 years	2	2
75 and over.....	1	2

It will be recollected that in last year's report I recorded the rare occurrence of the death of an infant under 12 months from Diabetes. There is nothing particular to record in the period of the year in which these deaths occurred, but the following is a supposed duration of the disease :—

Under 6 months	1 case.
6 months to 12 months	1 case.
1 year to 1½ years	4 cases.
1½ years to 2 years	3 cases.
2 years to 2½ years	4 cases.
3 years to 3½ years	2 cases.
3½ years to 4 years	1 case.
4 years to 4½ years	2 cases.
5 years to 5½ years	1 case.

PREMATURE BIRTH was the cause of the deaths of 14 males and 14 females, and OLD AGE was attributed as the cause of death of 40 persons, viz., 18 males and 22 females. One of these persons was under 65 years of age, 8 were between 65 and 75 years, and 31 were over 75.

APOPLEXY and its allied conditions claim a large number of victims year by year, 48 deaths being attributed to that during 1909. The record for the past few years has been as follows :—

Year.	Males.	Females.	Total.
1901.....	20	25	45
1902.....	21	21	42
1903.....	28	13	41
1904.....	22	25	47
1905.....	15	34	49
1906.....	21	33	54
1907.....	30	29	59
1908.....	31	45	76
1909.....	28	20	48

The age groups of the 1909 cases were as follows :—

0 to 1 year	1 case.
35 to 45	1 case.
45 to 55	6 cases.
55 to 65	12 cases.
65 to 75	20 cases.
75 and over	8 cases.

It will be observed that the usual age incidence of Apoplexy is borne out by the 1909 results, viz., its more frequent occurrence between the ages of 55 and 75. It is a very rare occurrence for a death from this condition to be registered in a child under one year, as has happened in the year under review.

CONVULSIONS was vaguely attributed as the cause of 11 deaths, 7 of which were males and 4 females. All but one of them were under the age of 5 years. It would be more satisfactory if this term were only applied when it was not possible to indicate what was the cause of the convulsions, as they are only symptoms, not a disease in themselves.

DISEASES OF THE CIRCULATORY SYSTEM accounted for 105 deaths, 9 of which were diseases of blood vessels, and the remainder were diseases of the heart; 2 deaths from Aneurism were registered, viz., a male between 55 and 65 years of age, and a male visitor between 65 and 75. Under the heading "Other Diseases of the Heart" the large number of 59 is given. Most of these are probably due to valvular disease, only that the cause is not specified in sufficient detail to justify the classification under the latter heading. Also a large number of Inquest cases where the *post-mortem* examination has not been held, are described as "probably heart failure," and are classified as "Other Diseases of the Heart."

DISEASES OF THE RESPIRATORY ORGANS (apart from Phthisis) accounted for 160 deaths. 86 of these were due to Bronchitis, and 54 to Pneumonia. The months in which

these deaths occurred were as follows :—

January	6	July	7
February	21	August	8
March	28	September ...	11
April	24	October	6
May	9	November.....	10
June	13	December	17

The record of these diseases for the past few years has been as follows :—

Year.	Cases.	Year.	Cases.
1900.....	152	1905.....	101
1901.....	133	1906.....	106
1902.....	127	1907.....	134
1903.....	114	1908.....	115
1904.....	114	1909.....	160

INFLAMMATION OF KIDNEYS (Nephritis and Bright's Disease) caused 39 deaths, viz., 23 males and 16 females. One of the cases was an infant under 12 months of age, but the majority of the remainder were between the years of 55 and 75. There is nothing particular to note in the period of the year in which these deaths occurred, except that 19 of them occurred during the last 4 months. The total number of deaths is somewhat in excess of previous years, the nearest approach being 29 in 1906. In 1908 there were only 5 deaths from this cause.

DISEASES ASSOCIATED WITH PARTURITION caused only one death throughout the year.

DEBILITY was certified as the cause of death of 20 persons, 18 of whom were infants under one year of age. With perseverance in the methods of combatting Infant Mortality now adopted, it may with confidence be anticipated that the number of deaths from this ill-defined cause will gradually diminish.

TUBERCULAR DISEASES OTHER THAN PHTHISIS caused the following deaths :—

Tuberculosis of Brain	5 cases.
„ Peritoneum .	3 cases.
„ Intestines ...	2 cases.
„ Rectum	1 case.
„ Spine	1 case.
General Tuberculosis ...	6 cases.
	—
	18
	==

PHTHISIS.

On the 1st of January, 1909, an Order of the Local Government Board came into force, whereby all cases of Phthisis occurring either in a Poor Law Infirmary or in the practice of a Poor Law Medical Officer, are to be notified to the Medical Officer of Health. This Order was followed by a Memorandum by the Medical Officer of the Local Government Board, on “Administrative Measures against Tuberculosis.” Advantage was taken of this opportunity by your Medical Officer of Health of submitting to the Health Committee a report on the whole subject, pointing out the advantages which might accrue from a system of voluntary notification if adopted in Blackpool, and as a result of the

discussion on this report, the Committee decided to adopt a system of voluntary notification. A copy of the following circular was sent out to the medical practitioners in the town :—

COUNTY BOROUGH OF BLACKPOOL.

PUBLIC HEALTH DEPARTMENT.

DEAR SIR,

“ Voluntary Notification of Phthisis.”

I beg to inform you that the Blackpool Corporation have, by resolution, decided to adopt a *system of Voluntary Notification of Pulmonary Phthisis*, and the Medical Practitioners are invited to notify to the Medical Officer of Health any cases of this disease with which they come in contact within the boundaries of Blackpool.

The notifications should be made on the ordinary Infectious Diseases Notification forms, and a fee of 2/6 will be paid for each notification (unless it occurs in the practice of a Poor Law Medical Officer).

There will not be any attempt at treatment on the part of the Corporation, but advice on Hygienic preventive measures will be given in cases where the medical man in attendance is of opinion that supplemental aid of this character would be advisable and acceptable.

You are requested to state on your notification forms whether visits from the Health Officials are or are not desired, and no cases will be visited except with the consent of the medical attendant.

I trust you will see your way to notify to me most if not all of the cases of Phthisis which come under your care. These notifications, will, if you should so desire, be for my own private information, and give me a knowledge of the incidence and extent of the disease in the town.

Disinfection of any infected room or bedroom, and Bacteriological Examinations of the sputum of suspected cases will be carried out by the Corporation without charge, on application to the Medical Officer of Health.

I beg to enclose you a copy of " Recommendations " I have prepared, which will convey the nature of advice given in such cases of Phthisis as are visited by the officials of the Health Department.

I remain, yours faithfully,

E. W. REES JONES,

21, BIRLEY STREET,
BLACKPOOL,

Medical Officer of Health.

17th May, 1909.

[ENCLOSURE].

The patient should have a bedroom to himself as far as circumstances will permit.

The bedroom should not have much furniture, and carpets should not be used.

A bedroom with a fireplace should be chosen where possible, and the bedroom window should be kept open day and night.

The bedroom should be dusted daily with a damp duster, and the duster then boiled.

The bedroom should be disinfected periodically.

(This will be done by the Health Department, on application, free of charge).

Do not spit into a handkerchief, but into a vessel containing some weak disinfectant. The contents of this vessel should then be poured down the closet, or burned.

(Disinfectant will be supplied free of charge on application to the Health Department).

When out, or at work, do not spit on to the street or floor, but into a bottle.

(Suitable bottles, which can easily be carried in the pocket, may be obtained from any chemist for a few pence).

When coughing, hold a handkerchief over the mouth.

Boil all handkerchiefs.

Persons suffering from consumption should refrain from kissing.

I am pleased to be able to report a most satisfactory working of this system as adopted by the Corporation. Many of the medical men in the town have extended a hearty co-operation in attempting to check the spread of infection, and have notified to me all the cases which occurred in their practice, indicating, whether the case notified was only for my private information, or whether a visit from me was desired in order to emphasise the precautions which it was advisable to recommend. In no case notified has the visit of the Medical Officer of Health been resented, but on the contrary, most cases have been glad to receive any additional advice. I had hoped that the clauses I inserted in my circular letter stating that no cases would be visited except with the consent of the medical attendant would have led to all the cases in town being notified to me, but this has not proved to be the case.

Under the Poor-Law Regulations nine cases of Phthisis, and under the Voluntary System, 46 cases have been notified to me. I do not propose to give you any further statistics of these cases, but it is a source of satisfaction to know that all have been advised either by their medical attendant or by the Medical Officer of Health what precautions they should adopt in order to avoid infecting other members of their family or their fellow-workers.

If the disposal of expectoration and the prevention of cough-spray is effectually carried out, a sufferer from Consumption may with impunity continue his daily avocation, and mix with his fellows, and no social disability of any sort need be imposed upon him.

To be effective, administrative measures against Tuberculosis should be adopted at the very earliest stage of the

disease, and as at this stage the disease is curable, it will be understood how much more valuable the voluntary system is than the Poor Law Regulations. The cases notified under the latter system are in many instances cases of some duration and so advanced that the patients are unable to continue earning their living, and are obliged to seek public assistance. Therefore, while the prevention of infection is equally important, the prospect of cure is more remote. It is to be hoped that the voluntary notification will be more and more adopted, for Sanitary Authorities cannot remain inactive in dealing with Tuberculosis, and failing a whole-hearted co-operation between Patients, their Medical Attendants, and the Medical Officer of Health, compulsory notification will have to be resorted to. By many sanitarians, compulsory notification is considered the only solution of the problem, and if this is so, it is well for us to have a little experience of the voluntary system first, in order to prepare us for the wider scheme.

But whether or not all individual cases are notified, I hold most strongly that the Sanitary Authority should have compulsory powers to disinfect thoroughly all premises which have been occupied by consumptive persons, and that it should be a penal offence to allow such premises to be occupied by others without previous disinfection. A provision such as this is specially necessary in health and pleasure resorts.

Many Sanitary Authorities are providing temporary Hospital accommodation for certain of their cases. In some instances beds are reserved at Sanatoria, and in others, existing buildings, such as empty Small-Pox Hospitals, are used for the purpose. At the recent Health Congress in

Leeds, several representatives spoke very highly of and recommended this procedure. While the individual cases profit, the main benefit is an educational one, for the patients are taught what routine procedure to adopt, and are able to continue this after their return home. At this early stage of our local administrative efforts in regard to consumption, I do not recommend the Sanitary Authority to adopt these methods, but I urge them for your consideration in the meantime, so that, when the time comes, we shall be prepared, without unnecessary delay, to extend our efforts.

Phthisis accounted for 51 deaths during the year, viz., 45 residents and 6 visitors. The ages at death and the months in which they occurred, are as follows :—

				Males.	Females.
				—	—
1 to 5	...	...	...	—	1
5 to 15	...	...	...	—	1
15 to 25	...	...	...	1	3
25 to 35	...	...	...	7	7
35 to 45	...	...	...	13	4
45 to 55	...	...	...	2	5
55 to 65	...	...	...	—	1
65 to 75	...	...	...	5	1
75 and over	...	...	...	—	—
				<u>28</u>	<u>23</u>
January	.....	7	July	.....	4
February	....	3	August	.....	4
March	.....	4	September	...	6
April	.....	3	October	.....	3
May	.....	7	November	.....	3
June	.....,...	1	December	....	6

Inquiries into the family history of the fatal cases of Phthisis reveal the following :—

3	cases—	One parent died of Phthisis	
9	„	A brother or sister	„
1	„	Wife	„
2	„	Son or daughter	„
2	„	Aunt or uncle	„
1	„	Cousin	„
1	„	Father and brother	„
2	„	Mother and sister	„
2	„	A grandparent	„
1	„	Grandmother and aunt	„
27	„	No family history of Phthisis.	

The duration of illnesses was as follows :—

1	to	6	months	.....	2	cases.
6	to	12	months	.....	9	cases.
1	to	1½	years	.....	16	cases.
1½	to	2	years	.....	3	cases.
2	to	2½	years	.....	10	cases.
3	to	3½	years	.....	5	cases.
4	to	4½	years	.....	3	cases.
5	to	5½	years	.....	2	cases.
Indefinite					1	case.

Disinfection of the premises by means of a formalin spray has been offered in each case. In 37 cases disinfection was carried out by the Health Authority, in six cases by the occupier, in five cases disinfection was refused, and of the remaining three cases I have no information.

Eighteen specimens of sputum have been submitted for bacteriological examination. Twelve of these gave a negative and six a positive result.

The number of deaths and death-rates from Phthisis in the past ten years have been as follows :—

Year.	Number of Deaths.	Death-rate.	Death-rate corrected for Non-Residents.
1901	49	0.97	0.73
1902	56	1.07	0.86
1903	53	1.00	0.74
1904	57	1.05	0.86
1905	63	1.13	0.92
1906	52	0.9	0.68
1907	61	1.04	0.86
1908	55	0.92	0.86
1909	51	0.83	0.73

THE GROUP OF SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES was the cause of 167 deaths. The diseases in this group, which are notifiable, will be dealt with in detail under Part II.

WHOOPIING COUGH caused 7 deaths, all under the age of five years (and of these 3, or 43 per cent., were infants under 12 months). The Wards affected were: Talbot 5, Bank Hey 1, Brunswick 1. One of the fatal cases from this disease was a visitor temporarily resident in the town, and had been in Blackpool for six days only, but had been ill with Whooping Cough for 2 weeks.

The months in which the deaths occurred were as follows :—

May	1	October	1
July	2	November.....	1
September ...	1	December	1

The numbers of deaths in previous years have been as follows :—

1908	1907	1906	1905	1904	1903	1902	1901	1900
—	—	—	—	—	—	—	—	—
12	27	6	3	13	1	3	12	19

INFLUENZA caused 20 deaths, as compared with 13, 11, 15, 11, and 4, in the five years immediately preceding. The disease was very prevalent in the early part of the year, and of the 20 deaths registered, 15, or 75 per cent. occurred during the month of March. The age incidence, and the months in which the fatal cases occurred, was as follows :—

Age 5 to 15—1	.....
Age 15 to 25—2	.....
Age 35 to 45—2	..... February . 1
Age 45 to 55—3	..... March.....15
Age 55 to 65—6	..... April..... 3
Age 65 to 75—3	..... June..... 1
Age 75 and over—3	.....

DIARRHŒA caused 13 deaths at the following age periods :—

0 to 1—11. 55 to 65—1. 75 and over—1.

It will thus be seen that the great majority of these deaths occurred during the first year of life. They have all been inquired into by the Health Visitor, and the conditions as to housing and feeding found will be given in detail under the next paragraph. The months in which the deaths occurred were as follows :—

Under 1. Over 1.		Under 1. Over 1.	
—	—	—	—
January 1	..... —	August	— 1
April 3	..... —	September	— 1
June 2	..... —	October 2 —
July 2	..... —	December 1 —

The number of deaths from Diarrhœa for each of the past few years is as follows :—

1895	69	1899	81	1903	25	1907	9
1896	33	1900	55	1904	38	1908	28
1897	52	1901	41	1905	30	1909	13
1898	101	1902	10	1906	35		

It will be observed that only on two occasions in the period comprised in the Table have there been fewer diarrhœa deaths than in 1909, viz., in 1902 and 1907, when there were 10 and 9 respectively. I attribute the diminution in the number of deaths to the improved methods of feeding the children.

INFANTILE MORTALITY.

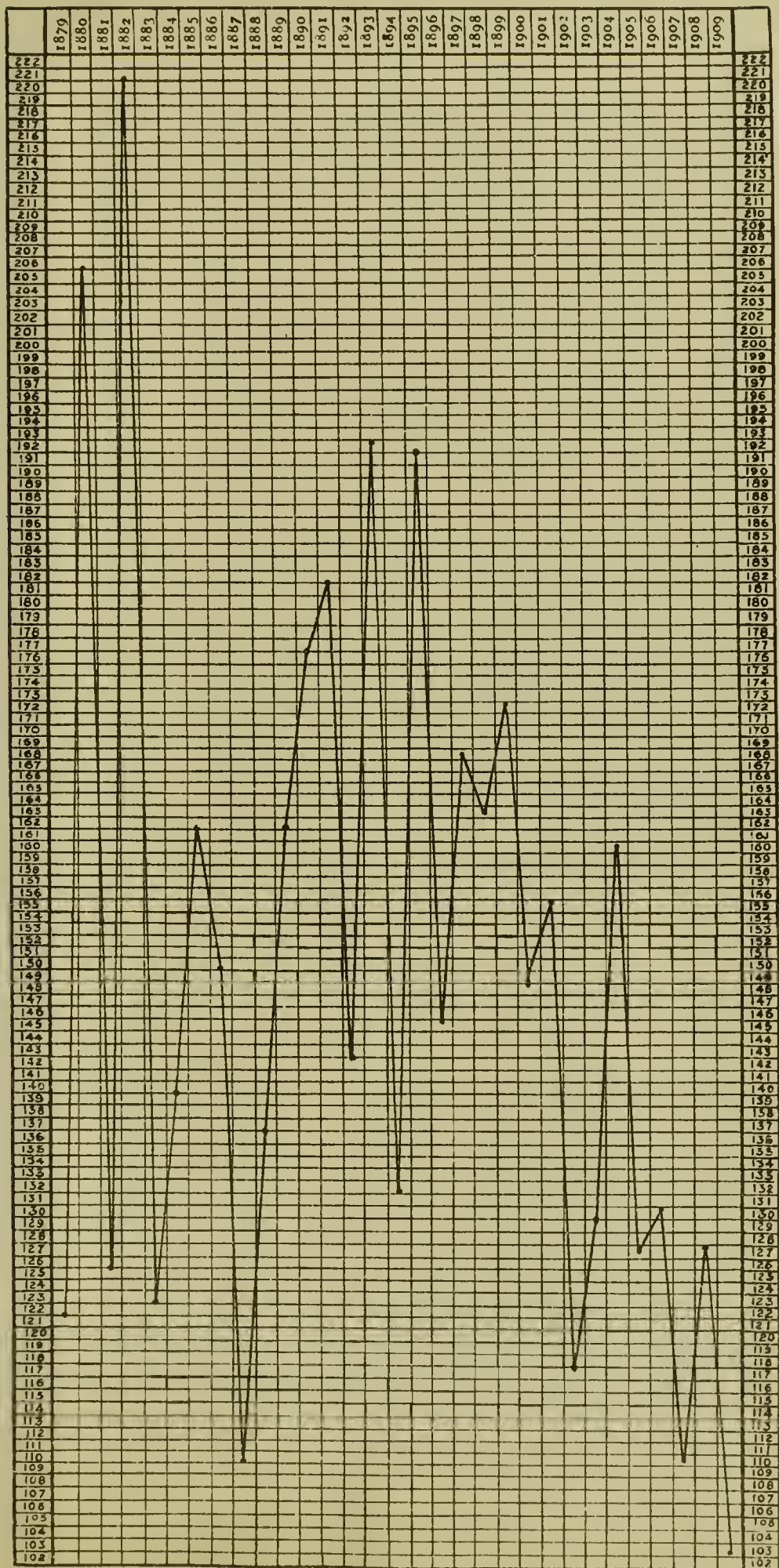
The Infantile Mortality or rate of deaths of infants under 1 year per 1,000 births for 1909 was 111, or 103, if corrected for residents. It is gratifying to be able to report that these are the lowest figures ever yet recorded for Blackpool, and I have no hesitation in stating that this reduction in the rate is not merely an accidental occurrence, but is due in great part to the direct efforts which the Corporation are making to deal with the matter. The expense involved in the work of a Health Visitor is a small matter in comparison to the saving of infant life consequent upon this work. This saving will be very apparent on referring to the table under the Diarrhœa heading, shewing the annual deaths from Diarrhœa in past years.

During the year 114 children died in the town before reaching the age of 12 months. 65 of these were males and 49 were females. Of these 114 children, however, 6 males and 2 females were visitors to the town, and their births were not included in our total of 1,026 births for the year. The following Table gives these figures for the past 30 years, and the chart following it represents in a more diagrammatic manner the fluctuations from year to year :—

INFANT MORTALITY, 1879-1909.
Rate per 1,000 Births.

Year.	Blackpool.		England and Wales
	Gross.	Nett residents only	
1879	122	122	135
1880	206	206	153
1881	126	126	130
1882	221	221	141
1883	140	123	137
1884	146	140	147
1885	174	162	138
1886	152	150	149
1887	116	110	145
1888	137	137	136
1889	169	162	144
1890	182	177	151
1891	193	182	149
1892	160	143	148
1893	210	193	159
1894	160	132	137
1895	206	192	161
1896	159	146	148
1897	191	169	156
1898	178	163	160
1899	184	173	163
1900	161	149	154
1901	168	156	151
1902	123	118	133
1903	135	130	132
1904	170	161	145
1905	135	127	128
1906	140	131	133
1907	113	111	118
1908	137	128	121
Mean of 30 years	160	151	143
1909	111	103	109

CHART SHOWING INFANTILE MORTALITY from 1879 to 1909.



The figure compares with other parts of the country as follows :—

England and Wales	109
76 Great Towns	118
142 Smaller Towns	111
Rural England and Wales	98
Blackpool	103

In the 1908 report I recorded the fact that the Blackpool Infant Mortality rate was the same as the rate for the 76 great towns, but in the year 1909 the relative position of affairs is much improved. Considering that our population is not so congested, that our atmosphere is not so contaminated by smoking chimneys or effluvia of trade processes, and that we have not any industrial concerns employing female labour to any great extent, I think our Infant Mortality rate ought to be lower than that of the large manufacturing towns.

The rates for the four quarters of the year were as follows :—

1st Quarter	117.02
2nd Quarter	79.25
3rd Quarter	90.91
4th Quarter.....	163.72

The following Tables (V. and VI.) show the numbers of infantile deaths and the Infantile Mortality for the various Wards for a succession of years :—

TABLE V.

Number of Children (residents only) under one year old who died in the respective Wards.

WARD.	1891-5	1896-1900	1901-1905	1901	1902	1903	1904	1905	1906	1907	1908	1909
Claremont	78	98	125	23	22	26	26	28	20	17	15	16
Talbot ...	179	271	243	51	47	53	56	36	39	21	41	30
Bank Hey	15	23	16	5	1	3	6	1	2	8	—	2
Brunswick	91	148	83	21	12	11	22	17	22	18	18	20
Foxhall .	159	289	268	57	53	50	54	54	40	38	40	27
Waterloo.	60	107	84	24	13	15	24	8	11	15	20	11
Total for Borough	582	936	819	181	148	158	188	144	134	117	134	106

TABLE VI.

Infant Mortality ; Deaths of Children (residents only) under one year old per 1,000 births :—

WARD.	1891-5	1896-1900	1901-1905	1906	1907	1908	1909
Claremont..	172.5	117.2	142.1	139.86	103.03	104.90	100.00
Talbot	162.8	162.6	151.8	150.00	81.71	155.30	112.36
Bank Hey...	112.0	157.5	133.6	111.11	347.83	—	125.00
Brunswick..	168.2	188.3	119.4	165.41	139.53	120.00	134.23
Foxhall	187.2	172.7	143.5	119.76	112.76	118.69	85.17
Waterloo ...	163.9	151.3	114.1	81.48	102.74	144.93	94.02
Total for Borough...	168.3	160.2	138.4	130.99	110.69	127.86	103.31

Table VII. in the Appendix shows the causes of deaths, and the ages at death. It will be seen that 40 deaths, or 35 per cent., occurred during the first month of life ; 15, or 13 per cent. during the second ; and 8, or 7 per cent. during the third. Thus 63, or 55 per cent. of all deaths of infants under one year of age occurred during the first three months. Nineteen infants died on the first day of life. Fifteen of these deaths were caused by prematurity, one by injury at birth, and one by debility.

The groups of diseases caused the following deaths :—

Common Infectious Diseases.....	5
Diarrhoeal Diseases (including 5 Diarrhoea)....	11
Wasting Diseases (including 33 from pre- maturity and 18 from Debility).....	51
Tuberculous Diseases	4
Other causes (including 16 from Bronchitis and Pneumonia, and 7 from Convulsions).....	43

Twenty-four infants died before they were fed, *i.e.*, before it could be said that any particular mode of feeding had any influence on their chances of viability. It will be observed from the Table on the preceding page that in all the classes of infantile deaths except Pneumonia, the breast-fed children were fewer than those which were only partly breast-fed. This is of special importance in the deaths from diarrhœa, where of the eleven deaths, only two children were breast-fed entirely, while the remaining nine were partly or entirely hand-fed. The accumulated evidence of a series of years points most unmistakeably to the fact that a breast-fed child has a better chance of living than a hand-fed one, and hence the value of the services of a Health Visitor to impress upon mothers the importance of persevering with the breast milk, even if in some cases it has to be supplemented with cow's milk, suitably prepared according to age of child. Perseverance in the most suitable methods of infant feeding not only reduces the Infantile Mortality, but it leads to healthier and sturdier children; and when we consider the steadily declining birth-rate the urgency of administrative efforts to reduce Infantile Mortality becomes more and more apparent.

With regard to Infant Insurance the following results were obtained :—

Insured for 10s. or less	5 cases.
„ between 10s. and £1	2 „
„ between £1 and £1 10s.....	9 „
„ between £2 and £3.....	7 „
„ but amount not stated	5 „
Not insured	82 „
Doubtful	4 „

In 14 cases only were the mothers employed away from home, and as I have before stated, this is one of the reasons why we should not be satisfied until our Infant Mortality rate reaches and remains at 100.

The months in which the infantile deaths occurred were :—

January	9	May	2	September	10
February	10	June	12	October	13
March	14	July	9	November	11
April	7	August	4	December	13

With regard to the Diarrhœa deaths the following mode of storage of food was found :—

Food stored in scullery—9 cases.

Food stored in pantry or larder—3 cases.

Food stored in living room—I case.

DEATHS FROM VIOLENCE.—The number of deaths classified under this heading was 31 for the year 1909, including 6 visitors, as compared with 32 in 1908, 27 in 1907, and 46 in 1903. They are classified thus :—

	Accident.	Suicide.	Murder.	Total.
Fractures and Contusions .	8	—	—	8
Burns and Scalds	7	—	—	7
Drowning	2	1	—	3
Suffocation	2	—	—	2
Otherwise	5	1	—	6
Homicide	—	—	1	1
Poisoning	—	1	—	1
Hanging	—	3	—	3
Totals	24	6	1	31

INQUESTS.

The number of inquests held during the year was 39. The rate of inquest deaths was 45 per 1,000 deaths, as compared with 73 per 1,000 deaths in England and Wales.

The following is an analysis of the verdicts :—

ACCIDENTAL.

Burns and Scalds	7
Cerebral Abscess—result of injuries	1
Fall	7
Injuries.....	6
Suffocation.....	1

SUICIDE.

Carbolic Acid Poisoning	1
Drowning	1
Hanging	3
Fall from bedroom window.....	1

NATURAL AND OTHER CAUSES.

Found drowned	2
Septicæmia.....	1
Natural causes	7
Murder	1

TABLE IX. (Part I).

Analysis of Causes of Deaths at several Groups of Ages from Different Causes.
52 Weeks ending 1st January, 1910.

CAUSE OF DEATH.		AGES AND SEXES.																WARDS																	
		0 to 1		1 to 5		Total under 5 years		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 and over		Total		Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institutions		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F									M	F
I.	SPECIFIC FEBRILE or ZYMOTIC DISEASES	R	V	11	6	10	14	21	20	10	17	5	5	7	10	10	7	7	8	2	5	7	3	1	4	70	79	18	41	5	16	55	14	149	32
				3	1	1	2	4	3	1	...	...	...	...	...	6	1	...	2	1	...	...	...	...	12	6	1	4	...	5	8	...	18	2	
II.	PARASITIC DISEASES	R	V	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1
III.	DIETETIC DISEASES	R	V	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...
IV.	CONSTITUTIONAL DISEASES ...	R	V	1	1	1	1	2	2	...	...	1	1	2	2	6	10	11	13	10	5	10	3	4	38	46	18	18	4	15	18	11	84	12	
				...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	2	...	...	...	1	...	6	2	...	...	2	2	...	...	6	...
V.	DEVELOPMENTAL DISEASES ...	R	V	18	14	1	...	19	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	1	3	...	14	18	1	11	19	6	69	5
				...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4	...
VI.	LOCAL DISEASES	R	V	20	13	11	8	31	21	7	9	10	5	11	10	15	24	32	24	46	31	58	40	14	30	224	194	73	118	9	76	100	42	418	40
				2	1	...	1	2	2	...	...	2	1	1	1	1	3	2	4	4	3	9	2	4	3	25	19	11	5	3	4	13	8	44	4
VII.	DEATHS FROM VIOLENCE	R	V	...	2	2	2	2	4	...	1	...	3	...	3	...	...	...	...	2	3	2	1	...	1	13	10	3	6	...	2	7	5	23	6
				1	...	1	...	2	...	...	...	...	...	2	1	...	...	1	...	1	...	...	...	...	6	2	2	2	1	1	2	...	8	2	
VIII.	DEATHS FROM ILL-DEFINED and not SPECIFIED CAUSES	R	V	9	11	...	...	9	11	...	...	...	...	...	...	...	...	...	...	1	2	3	1	1	1	17	17	9	5	1	6	7	6	34	3
				...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	1	3	...
	Grand Totals	R	V	59	47	25	25	84	72	17	27	18	11	23	23	32	37	50	66	51	77	59	33	54	400	379	136	207	20	126	206	84	779	99	
				6	2	2	4	8	6	1	...	2	1	3	3	9	6	3	6	6	6	11	3	4	71	47	38	16	15	5	14	25	10	85	8

TABLE IX. (Part II. RESIDENTS ONLY).

CAUSE OF DEATH.	AGES AND SEX.											WARDS.									
	0	1	Total	5	15	25	35	45	55	65	75	Total	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institutions	
	to 1	to 5	under 5 years	to 15	to 25	to 35	to 45	to 55	to 65	to 75	and over										
SPECIFIC, FEBRILE, or ZYMOTIC DISEASES.																					
1.—MIASMATIC DISEASES.																					
Smallpox { Vaccinated																					
{ Un-vaccinated																					
{ No statement																					
Measles		3	1	1								4	1	1			4		5		
Scarlet Fever.....	1	2	1	3	5							6	6	3	3		5	1	12	8	
Typhus																					
Whooping Cough	1	2	2	4								2	4		5	1				6	
Diphtheria, Membranous Croup	1	3	4	8	2	7		1		1		7	16	1	7		6	4	5	23	
Simple, Continued, and Ill-defined Fever																				14	
Enteric or Typhoid Fever																					
Tabes Mesenterica	2		1	2	1	1		1				3	3		1			3	2	6	
Tubercular Meningitis, Hydrocephalus			1	1	2							3	1	1		1	2		4		
Phthisis.....												1	3	1	1						
Other forms of Tuberculosis, Scrofula				1	1	3	7	8	4	2	5	1	5	1			1	6	15	3	
Other Miasmatic Diseases	1	1	1	1	2	1		1	1			5	4	1	1		7		45	1	
Influenza																				9	
				1	2	2	2	1	2	4	1	3	7	12	1	5	3	5	2	19	2
2.—DIARRHOEAL DISEASES.																					
Simple Cholera																					
Diarrhoea, Dysentery	6	2	6	2								1	6	3	1	2		5	1	9	1
3.—MALARIAL DISEASES.																					
Remittent Fever.....																					
Ague																					

TABLE IX. (Part II.—Continued).

CAUSE OF DEATH.	AGES AND SEX.														WARDS.									
	0 to 1		1 to 5		Total under 5 years		5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 and over	Total	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institu'ts	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	1	2	3	4	5	6	7	8
4.—ZOOGENOUS DISEASES.																								
Cowpox and Effects of Vaccination																								
Other Diseases, Hydrophobia, Glanders, Splenic Fever																								
5.—VENEREAL DISEASES.																								
Syphilis																								
Gonorrhœa, Stricture of Urethra																								
6.—SEPTIC DISEASES.																								
Erysipelas																								
Pyæmia, Septicæmia																								
Puerperal Fever																								
II.—PARASITIC DISEASES.																								
Thrush and other Vegetable Parasitic Diseases																								
Worms, Hydatids and other Animal Parasitic Diseases																								
III.—DIETETIC DISEASES.																								
Want of Breast Milk, Starvation																								
Scurvy																								
Chronic Alcoholism																								
Delirium Tremens																								

TABLE IX. (Part II.—Continued).

CAUSE OF DEATH.	AGES AND SEX.												WARDS.							Institutions		
	0 to 1	1 to 5	Total under 5 years	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 and over	Total	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total			
IV.—CONSTITUTIONAL DISEASES	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	M F	1	2	3	4	5	6	7	8
Rheumatic Fever, Rheumatism of the Heart															1							
Rheumatism															1							1
Gout															1							1
Rickets	1	1	1																			2
Cancer, Malignant Disease	1		1		1	1	1	5	7	9	3	2	3	24	35	14	14	3	8	14	6	59
Purpura, Hæmorrhagic Diathesis																						11
Anæmia, Chlorosis, Leucocythæmia																						1
Glycosuria, Diabetes Mellitus																						4
Other Constitutional Diseases																						15
V.—DEVELOPMENTAL DISEASES																						2
Premature Birth	14	14	14											14	14	4	8		8	5	3	28
Atelectasis																						
Congenital Malformations	4	1	5											5		2	2			1		5
Old Age																						
VI.—LOCAL DISEASES.																						
I.—DISEASES OF NERVOUS SYSTEM.																						
Inflammation of Brain or Membranes		1	1	1	2	1								2	5	2	2		2		1	7
Apoplexy, Softening of the Brain, Hemiplegia, Brain Paralysis	1		1																			
Insanity, General Paralysis of the Insane																						
Epilepsy																						
Convulsions	2	2	2	1	4	3								5	3	2	4		2			8

TABLE IX. (Part II.—Continued).

CAUSE OF DEATH.	AGES AND SEX.												WARDS.																
	0 to 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 and over		TOTAL	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	TOTAL	Institu'ts
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F									
Laryngismus Stridulus (Spasm of Glottis)																													
Disease of Spinal Cord, Paraplegia, Paralysis Agitans																													
Other Diseases of Nervous System	1																												
2.—DISEASES OF ORGANS OF SPECIAL SENSE.																													
Of Ear, Eye, Nose	2																												
3.—DISEASES OF CIRCULATORY SYSTEM																													
Pericarditis.																													
Acute Endocarditis																													
Valvular Diseases of Heart																													
Other Diseases of Heart.	1																												
Aneurysm.																													
Embolism, Thrombosis																													
Other Diseases of Blood Vessels																													
4.—DISEASES OF RESPIRATORY ORGANS																													
Laryngitis.																													
Croup																													
Emphysema, Asthma																													
Bronchitis.	10	3	4	1	14	4																							
Pneumonia	1	2	1	2	2	4	2	3	2	2	3	1	4	3	8	1	5	2	1	1	1	29	16	8	14	5	1	45	5
Pleurisy																													
Other Diseases of Respiratory System																													

TABLE IX. (Part II.—Continued).

[illegible]

TABLE IX. (Part II.—Continued.)

CAUSE OF DEATH.	AGES AND SEX.												WARDS.																	
	0 to 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 and over		Total		Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institutions
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F								
9.—DISEASES OF REPRODUCTIVE SYSTEM (a) <i>Of Organs of Generation.</i> Male Organs Female Organs (b) <i>Of Parturition.</i> Abortion, Miscarriage Puerperal Convulsions Placenta Prævia, Flooding Other Accidents of Childbirth	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	1	2	3	4	5	6	7	8
10.—DISEASES OF BONES AND JOINTS.																														
Caries, Necrosis..... Arthritis, Osteitis, Periostitis..... Other Diseases of Bones and Joints																														
11.—DISEASES OF INTEGUMENTARY SYSTEM.																														
Carbuncle, Phlegmon Other Diseases of Integumentary System ...																														
VII.—DEATHS FROM VIOLENCE																														
I.—ACCIDENT OR NEGLIGENCE.																														
Fractures and Contusions..... Gunshot Wounds Cut, Stab Burns, Scalds																														

TABLE IX. (Part II.—Continued).

CAUSE OF DEATH.	AGES AND SEX.												WARDS.									
	0 to 1	1 to 5	Total under 5 years	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 and ov'r	TOTAL	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	TOTAL	Institutions		
Poison	M	F	M	F	M	F	M	F	M	F	M	F	M	F	1	2	3	4	5	6	7	8
Drowning																						
Suffocation	I		I						I			2		I					I		2	
Otherwise							I		I			2	I	I					2		3	
2.—HOMICIDE.																						
Manslaughter																						
Murder	I		I										I						I		1	
3.—SUICIDE.																						
Gunshot Wounds																						
Cut, Stab																						
Poison													I								I	
Drowning									I			I							I		1	
Hanging						I	2					3		I			I	I			3	
Otherwise						I						I					I				I	I
VIII.—DEATHS from ILL-DEFINED and not SPECIFIED CAUSES																						
Dropsy																						
Debility, Atrophy, Inanition	9	9	9						I			I	10	4	3			5	4	4	20	2
Mortification																						
Tumour																						
Abscess																						
Hæmorrhage																						
Sudden Death (cause not ascertained)																						
Causes not specified or ill-defined																						
Natural Causes	I		I			I	I		1	2	2	1	2	1	I				1	3	2	13
Injury at Birth	I		I																		I	I
Totals	59	47	25	25	84	72	17	27	18	11	23	23	32	37	50	45	66	51	77	59	33	54
	47	25	25										400	379	136	207	20	126	206	84	779	99

TABLE IX. (Part III. VISITORS ONLY).

CAUSE OF DEATH.	AGES AND SEX.												WARDS.																		
	0 to 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 and over		Total		Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institutions	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F									
I.—SPECIFIC, FEBRILE, OR ZYMOTIC DISEASES.																															
I.—MIASMATIC DISEASES.																															
Scarlet Fever																															
Whooping Cough																															
Diphtheria, Membranous Croup																															
Enteric or Typhoid Fever																															
Tubercular Meningitis, Hydrocephalus																															
Phthisis																															
Influenza																															
2.—DIARRHOEAL DISEASES.																															
Diarrhoea, Dysentery.....	3																														
III.—DIETETIC DISEASES.																															
Chronic Alcoholism																															
IV.—CONSTITUTIONAL DISEASES																															
Cancer, Malignant Disease																															
Glycosuria, Diabetes Mellitus																															
V.—DEVELOPMENTAL DISEASES																															
Old Age.....																															

TABLE IX. (Part III. VISITORS ONLY—Continued).

CAUSE OF DEATH.	AGES AND SEX.												WARDS								
	0 to 1	1 to 5	Total under 5 years	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 and over	TOTAL	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institu'ts	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
VI.—LOCAL DISEASES.																					
1.—DISEASES OF NERVOUS SYSTEM.																					
Inflammation of Brain or Membranes														1							1
Apoplexy, Softening of Brain, Hemiplegia, Brain Paralysis							1		2	1		1	2	4			2	1			6
Convulsions	2	1	2	1									2	1				2			3
Other Diseases of Nervous System					1								1					1			1
3.—DISEASES OF CIRCULATORY SYSTEM																					
Valvular Diseases of Heart									1				2				1				2
Other Diseases of Heart.....							1		1				3	2				2	2		5
Aneurism													1			1					1
4.—DISEASES OF RESPIRATORY ORGANS																					
Emphysema, Asthma					1									1					1		1
Bronchitis.....		1			1								5	4				2	4		9
Pneumonia				1			1		1	2			6	3		1	1	3	1		9
Pleurisy.....									1				1			1					1
5.—DISEASES OF DIGESTIVE SYSTEM.																					
Peritonitis														1							1
Other Diseases of Digestive System							1							1				1			1

TABLE IX. (Part III. VISITORS ONLY—Continued).

CAUSE OF DEATH.	AGES AND SEX.												WARDS.																
	0 to 1		1 to 5		5 to 15		15 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 75		75 and over		Total	Claremont	Talbot	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Institutions
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F									
6.—DISEASES OF URINARY SYSTEM.																													
Nephritis																													
Bright's Disease, Albuminuria																													
7.—DISEASE OF REPRODUCTIVE SYSTEM.																													
(a) Of Organs of Generation.																													
Female Organs																													
VII.—DEATHS FROM VIOLENCE.																													
I.—ACCIDENT OR NEGLIGENCE.																													
Fractures and Contusions																													
Burns, Scalds																													
Drowning																													
Otherwise																													
VIII.—DEATHS FROM ILL-DEFINED and not SPECIFIED CAUSES																													
Natural Causes																													
Totals	6	2	2	4	8	6	1	2	1	3	9	6	3	6	6	11	3	4	7	47	38	16	15	5	14	25	10	85	8

PART II.

INFECTIOUS DISEASES.

NOTIFICATION OF INFECTIOUS DISEASES DURING THE YEAR.

The following notifications were received :—

Scarlet Fever	348
Diphtheria	96
Enteric Fever	48
Puerperal Fever	4
Erysipelas.....	38
Measles	834
	<hr/>
	<u>1,368</u>

The comparison of these figures with those of the years from 1894 will be seen in Table XVII., page 66.

The incidence of Diphtheria and Scarlet Fever is comparatively high. The 1909 figure for Diphtheria, viz., 96, has only been exceeded once, viz., in 1901, when it was 131. The Scarlet Fever figure of 348 is the highest yet recorded. The notifications during the early portion of 1910 point to a very marked abatement in both these diseases.

The notifications as they occurred month by month are seen in the following Table :—

TABLE XV.

(Cases of Infectious Disease notified).

DISEASE.	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS
Small Pox .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	8	5	30	127	316	216	97	14	13	2	5	1	834
Scarlet Fever...	19	25	13	12	18	20	25	20	30	48	68	50	348
Diphtheria	12	11	9	9	6	9	6	8	5	7	5	9	96
Membranous Croup .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever...	2	9	8	10	1	3	3	2	3	1	2	4	48
Puerperal Fever	...	1	1	1	1	...	...	...	...	...	...	...	4
Erysipelas.....	4	1	3	5	2	5	6	1	4	2	2	3	38
Chicken Pox ...	2	6	14	13	10	12	6	3	8	14	2	11	101
TOTALS	47	58	78	177	354	265	143	48	63	74	84	78	1,469

In Table XIII. in the Appendix will be found a classification showing the number of persons attacked at various age-periods, and also the number of cases removed to Hospital from each locality.

The next Table shows the number of houses infected with the different diseases for each month of the year :—

TABLE XVI.

DISEASE.	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS
Small Pox .....	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	7	5	26	97	204	135	68	10	9	..	3	1	565
Scarlet Fever...	13	21	12	11	15	18	20	18	23	36	59	37	283
Diphtheria	13	14	8	10	5	9	5	8	5	7	5	9	98
Enteric Fever .	2	4	6	9	2	3	3	1	2	1	2	4	39
Puerperal Fever	..	1	1	1	..	..	..	..	..	..	..	..	3
Erysipelas.....	4	1	3	5	2	5	5	1	4	2	2	3	37
Membranous Croup ...	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken pox ...	2	5	10	10	7	9	5	3	5	6	2	8	72
TOTALS.....	41	51	66	143	235	179	106	41	48	52	73	62	1,097

TABLE XVII.

Cases of Infectious Diseases notified during the years 1894-1909 (inclusive).

	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Smallpox	20	8	—	—	—	—	—	4	2	22	8	3	9	—	—	—
Diphtheria	11	17	6	7	10	13	24	131	74	40	43	48	53	84	61	96
Membranous Croup	2	—	—	—	—	—	—	3	1	—	3	1	1	—	—	—
Erysipelas	—	—	—	—	—	—	14	13	13	19	26	17	18	13	18	38
Scarlet Fever.....	76	154	208	177	77	141	187	271	197	257	179	200	183	177	238	348
Typhus Fever ...	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever ...	61	79	66	50	67	59	68	58	70	42	28	51	39	41	65	48
Puerperal Fever	1	1	1	2	5	5	3	2	2	3	5	3	2	2	3	4
Measles	320	108	148	794	259	370	302	532	863	127	1,386	871	389	309	1,268	834
Rötheln	8	2	2	—	—	1	2	5	5	5	13	27	6	1	—	—
TOTALS.....	499	369	431	1,031	418	589	600	1,019	1,227	515	1,691	1,221	700	627	1,653	1,368

SCARLET FEVER.

Notifications, 348. Deaths, 13.

The ages and sexes of the notified cases were as follows :—

	Males.	Females.	Total.
Under 5 years.....	40	28	68
5 years to 10 years	73	86	159
10 „ 14 „	27	49	76
14 „ 20 „	11	11	22
20 „ 25 „	3	8	11
25 „ 30 „	2	1	3
30 years and over	2	7	9
Totals	158	190	348

The Ward incidence in each of the four quarters of the year was as follows :—

	1st Quar- ter.	2nd Quar- ter.	3rd Quar- ter.	4th Quar- ter.	Total 1909	1908	1907	1906	1905
Claremont...	5	12	11	29	57	29	32	19	32
Talbot	14	14	16	18	62	51	39	60	52
Bank Hey .	1	4	1	2	8	1	7	5	1
Brunswick .	11	11	14	20	56	32	22	16	26
Foxhall	19	8	28	80	135	94	50	60	74
Waterloo....	7	1	5	17	30	31	27	23	15
Totals....	57	50	75	166	348	238	177	183	200

The disease was present in the town all through the year, and there was only one week in which no notifications were received, viz., the fourth week in May. At the beginning of September the notifications began to be considerably more numerous, the climax being reached in the third and fourth weeks of November, when 20 cases were notified in each of these weeks. There can be little doubt that this excessive prevalence was caused by mild or unrecognised cases being brought into the town during the summer, and leaving trails behind them from which it took several weeks to recover. The disease appeared to start in the northern part of the town to the east of Lord Street, but eventually became concentrated in the district to the east of Central Drive. At the September meeting of the Health Committee, I reported that two cases of Scarlet Fever had been in the town from Newport Pagnell, from the 19th to the 28th August, and who commenced their illness before coming to Blackpool, but it was not until their return home that the nature of the disease was recognised, *i.e.*, when they showed definite signs of peeling. All precautions which could be taken at that late stage were carried out in the way of disinfection, &c., but any damage was already done, as the children roamed about without any restriction during their stay in Blackpool. On communication with the Medical Officer of Health at Newport Pagnell, it appeared that the parents of the children were ignorant of the nature of the disease until their return home, and for that reason legal proceedings were not instituted against them.

The greatest difficulty met with in dealing with an outbreak, such as occurred in Blackpool, is that the cases are

in many instances of such a mild nature that no serious illness is suspected by the parents. Cases were frequently come across where the first observed indication of the disease was some peeling. The onset symptoms had been so slight or so transient that no notice was taken of them, and the rash was not seen probably because the children were not stripped of their day clothes when put to bed. These cases were undoubtedly the most effective causes in prolonging the prevalence of the disease.

The measures taken by your Medical Officer of Health for combatting the disease were—(1) Isolation of known cases, and (2) Search for missed cases.

1. Cases were isolated in the Sanatorium as far as accommodation permitted. This accommodation was taxed to the uttermost for a short portion of the year, and it was necessary to engage extra nurses and wardmaids and to purchase additional conveniences for the treatment of the patients. Owing to the shortage of vacant beds at the Sanatorium, many cases were allowed to remain at home, but these cases were carefully selected, and were confined to those instances where isolation could be efficiently maintained, and where the occupations of the other inmates of the house were not such as to render it probable that the disease would be spread from the house. Details as to precautions which should be taken were given at each of these houses (see leaflet on page 84), and the District Inspectors paid frequent visits to see that these precautions were carried out.

2. Search for Missed Cases. This has taken two forms :—

- (a) House to house visitation by the Inspectors of all districts where cases occurred, and over 2,000 houses were thus visited. All cases of illness reported by the Inspectors were then visited by the Medical Officers of Health, and any of a suspicious character were kept under observation until their non-infectious nature had been determined.
- (b) Inspection of School Children. The Medical Officer of Health, and for the last few weeks of the year the Assistant Medical Officer also visited all the Schools where there had been cases of Scarlet Fever, and all the children in the affected classes were examined. Several cases of congested throats or peeling on the hands or feet were detected. These cases were not sufficiently definite to be notified as Scarlet Fever, yet were sufficiently suspicious to justify the Medical Officer in excluding them from school, isolating them at home, and keeping them under observation until the suspicious symptoms disappeared.

Disinfection of the Schools has been carried out as frequently and as extensively as was considered necessary, but greater success was anticipated from a search for missed cases than from disinfection of premises. Scarlet Fever is essentially a personal disease, *i.e.*, it is contracted by direct infection from another person rather than from rooms or buildings, and obviously it is of little use to disinfect a schoolroom if an infectious scholar occupies it the following day. Much assistance was rendered by the head teachers in this search for missed cases, and had it not been

for their help, the systematic inspection of the children would have been much more difficult.

The advisability of temporary school closure for Scarlet Fever was carefully kept in mind, but, in spite of much pressure from various sources, I did not consider it advisable or necessary to recommend this procedure.

Monthly spot maps have been kept at the Health Office showing the incidence of the disease, and these have periodically been submitted to the Health Committee.

From the Table on page 67 it will be seen that 235 of the cases, or over 67.5 per cent. occurred in children of school age (5 to 14 years).

The 348 cases occurred in 283 different houses. In 234 houses there was one case each, in 35 houses 2 cases each, in 12 houses 3 cases each, and in 2 houses 4 cases each.

287 of the cases, or 82.47 per cent., were removed to the Sanatorium. This is a somewhat high figure, but it is important in a town such as Blackpool that this and other infectious diseases should be removed from dwelling-houses to an Institution where they are efficiently isolated and treated.

The case mortality was 3.73 per cent., and the death-rate was 0.212 per 1,000 of the population. The ages and sexes of the fatal cases were :—Males of $\frac{10}{12}$, 3, 4, 6, 6, 6, and 8 years, and females of 3, 6, 7, 7, 7, and 9 years respectively. Nine of the 13 fatal cases occurred among Hospital patients.

DIPHTHERIA.

Notifications, 96. Deaths, 24.

The sexes and age groups of the notified cases were as follows :—

	Males.	Females.	Total.
Under 5 years.....	13	16	29
5 and under 10 years	13	27	40
10 „ 14 „	5	9	14
14 „ 20 „	2	—	2
20 „ 25 „	2	2	4
25 „ 30 „	1	1	2
30 and over.....	1	4	5
Totals	37	59	96

It will be observed that 54 of the cases, or 56 per cent., were of children of school age (5 to 14), though no special school was affected, nor was the disease limited to any part of the town. 66 of the cases, or 68.75 per cent., were removed to Hospital. The ages and sexes of the 24 fatal cases were as follows :—

Males.....	1 ₁₂ , 2, 3, 4, 5, 7, 68 years	Total	7
Females...	1 ₁₂ , 1 ₁₂ , 2, 2, 3, 4, 4, 4, 4, 5, 6, 6, 7,		
	8, 9, 10, 38 years	Total	17
			—
			24
			==

Fourteen of the deaths occurred in cases treated in Hospital, and ten in cases which were kept at home. The case mortality of the Hospital cases was 20.6 per cent., and of the home cases 33.3 per cent. The total case mortality was 25.0 per cent., and the death-rate from this disease was 0.39 per 1,000 of the population. The months in which the cases were notified are seen in Table XV., page 64.

The Ward incidence for the four quarters of the year was as follows :—

	1st Quar- ter.	2nd Quar- ter.	3rd Quar- ter.	4th Quar- ter.	Total 1909	1908	1907	1906	1905
Claremont...	5	5	5	4	19	16	7	17	10
Talbot	3	3	4	6	16	7	12	11	21
Bank Hey .	1	1	—	1	3	1	—	1	3
Brunswick .	7	3	1	6	17	12	13	8	3
Foxhall	8	9	8	2	27	16	28	10	11
Waterloo....	8	3	1	2	14	9	24	6	—
Totals ...	32	24	19	21	96	61	84	53	48

The comparison of the total notifications with previous years will be seen in Table XVII., on page 66.

The 1909 figure is in excess of all previous years except 1901, when it was 131, while in the years 1896 to 1899, 6, 7, 10, and 13 cases only were notified. It is evident that Diphtheria is now endemic in the town, and is considerably more prevalent than it used to be in former years. This transference of Diphtheria from Rural to Urban populations which has occurred has been noted and commented

upon by most Medical Officers of the English towns, but no satisfactory explanation has been offered. It cannot be doubted that the congestion of children during school hours has considerable influence in propagating the disease.

There are doubtless many mild and unrecognised cases of the disease, which act as centres of infection and account for the inability to detect the cause of many of the notified cases. All cases of sore throat in children should be considered suspicious, and should be excluded from school until the non-infectious nature has been determined. Bacteriological examinations are conducted by the Health Department free of charge.

Early in the month of July a case of Diphtheria was notified to me by telephone from the out-patient department of the Victoria Hospital. I sent the ambulance at once in order to remove the case to the Sanatorium, but the patient—a woman—had left. On enquiry at the Blackpool address in General Street which she had given at the Victoria Hospital, I was informed that she had left there two days previously. A vigorous search by the Sanitary Inspectors failed to detect any further trace of her.

Diphtheria antitoxin is kept at the Health Office, and is given to Medical Practitioners where application is made, irrespective of whether the cases are to be treated at home or in hospital.

SMALLPOX.

No cases of this disease occurred in Blackpool during 1909. Between the years 1896 and 1900 inclusive, the town was free from the disease; then there were cases in each year up to 1906, while 1907, 1908, and 1909 were again free.

The increased facilities which are being placed in the way of those who are not ashamed to avoid their moral obligations to the community, are undoubtedly leading to an increased number of people susceptible to the disease, and therefore when another outbreak occurs very stringent measures will have to be taken to prevent it attaining large and unwieldy proportions.

There is only one safeguard against Smallpox, and that is efficient and recent vaccination. The dangers of this simple operation are so remote that they may be disregarded.

VACCINATION.

Through the courtesy of Mr. Thomas Dixon, the Registrar of Births and Deaths, I am informed that the number of successful primary vaccinations during the year was only 555. This includes those performed by the private practitioners as well as by the public vaccinators. There were also 212 conscientious objectors. These figures are highly unsatisfactory, and mean that the percentage of our population susceptible to Small-pox is large and is increasing.

The comparison with previous years is as follows :—
1909, 555 ; 1908, 650 ; 1907, 809 ; 1906, 868.

In last year's Health Report I called attention to the anomalous state of affairs, whereby the working of the Vaccination Acts—essentially sanitary Acts—is in the hands of the Poor Law Authority, and not in the hands of the Health Authority.

MEASLES.

Notifications, 834 ; Deaths, 5.

This disease (which has been notifiable in Blackpool since 1879) was very prevalent during 1909. In Table XVII. on page 66 a comparison with recent years will be found, and it will be seen that though the 1909 figure is above the average, it is considerably below the figure for the year immediately preceding—(1908, 1,268 cases). There were only eleven weeks during the year in which no cases were notified, but the large majority of the notifications were received between the beginning of the fourth week in March and the end of the third week in July, 795, or 95.3 per cent. of the cases occurring during this period.

The Ward incidence for each quarter of the year was as follows :—

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total 1909
Claremont...	14	62	16	2	94
Talbot	6	209	32	—	247
Bank Hey .	—	8	14	—	22
Brunswick .	1	86	27	2	116
Foxhall	11	258	29	1	299
Waterloo....	11	36	6	3	56
Totals ...	43	659	124	8	834

The ages and sexes of the notified cases were :—

	Males.	Females.	Total.
Under 5 years.....	207	217	424
5 to 14 years	171	202	373
14 to 20 years	7	10	17
20 years and over	3	17	20
Totals.....	388	446	834

There is nothing particular to note in the relative incidence of the disease in the two sexes, but on examining the incidence on age periods, it will be observed that of the 834 cases, 424, or 50.8 per cent. occurred below the age of 5 years, 373, or 44.7 per cent. occurred during school life—or 5–14 years, and only 37, or 4.4 per cent. occurred after school life. It was necessary on several occasions to recommend closure of a school when it was particularly affected, and the lists of schools closed, and the periods for which they were closed, will be seen on page 89. The 834 cases occurred in 565 houses. In 372 houses there was one case each ; in 136 houses, 2 each ; in 43 houses, 3 each ; in 10 houses, 4 each ; in 3 houses, 5 each ; and in 1 house there were 5 cases.

It was necessary to send 3 letters to householders for failing to notify the Medical Officer of Health of the cases of Measles which occurred in their houses. There were 5 deaths from Measles during the year, all of which were residents. The case mortality works out at 0.60 per cent.,

while the death-rate was 0.08 per 1,000 of the population. The ages and sexes of the fatal cases were :—

	Males.	Females	Total.
Under 5 years	3	1	4
5 to 14 years	1	—	1
Totals.....	4	1	5

ENTERIC FEVER.

Notifications, 48 ; Deaths, 9.

The number of notifications for each of the past 16 years will be seen on reference to Table XVII. on page 66. It will be observed that the 1909 figure is below that of the preceding year (1908, 65), and may be looked upon as an average of that of the past five or six years.

The incidence of Enteric Fever in Blackpool is considerably less than it used to be in past years, the average for the years 1894 to 1902 being 65 cases per annum, while the average for the years 1903 to 1910 is 45. Considering the increasing size of the town a diminution in the incidence of Enteric Fever is a matter for much satisfaction. The actual relationship of Enteric Fever to defective drainage has not yet been fully and satisfactorily determined, but defective general sanitation has undoubtedly more to do with the propagation of Enteric Fever than of any other infectious disease (except Typhus Fever, which is now practically non-existent), and I have no hesitation in stating that the vigorous sanitary campaign carried on by the Blackpool Health Authority is an important contributing factor in the diminution of Enteric Fever.

The ages and sexes of the notified cases were as follows :—

AGE PERIOD.	Males.	Females.	Total
Under 5 years.....	—	1	1
5 and under 10 years	3	5	8
10 „ 14 „	3	—	3
14 „ 20 „	2	2	4
20 „ 25 „	2	1	3
25 „ 30 „	2	2	4
30 and over.....	15	10	25
Totals	27	21	48

Thirty-eight cases, or 79 per cent. were removed to Hospital. Details of the fatal cases are as follows :— Hospital cases—Males of 18 and 49 years, and Females of 7, 39, and 46 years; home cases—Males 15 and 38 years, and Females 26 and 52 years of age. The case mortality was 12.2 per cent., and the death-rate was 0.15 per 1,000 of the population. The Ward incidence in each of the four quarters was as follows :—

Ward.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.
Claremont...	—	—	—	2	2
Talbot	2	1	4	2	9
Bank Hey .	—	—	—	—	—
Brunswick .	3	5	—	—	8
Foxhall	14	7	3	2	26
Waterloo....	—	1	1	1	3
Totals ...	19	14	8	7	48

Inquiries into the causation have not yielded satisfactory results, and in many cases the source of infection remained undetected. In 10 cases there was a history of having eaten shellfish prior to the onset, and it is now admitted that these comestibles are capable of carrying and conveying the specific infection of Enteric Fever.

The 48 cases occurred in 39 different houses. In 34 houses there was one case each, in 3 houses two cases each, and in two houses four cases each.

Some peculiar cases of Enteric Fever have occurred illustrating the infectivity of the disease, and emphasising the importance of Hospital isolation.

Four cases were notified simultaneously on the 24th of February from one house. Hospital was refused, as one of the patients was an epileptic, another suffered from consumption, and further, the tenant of the house did not agree with the doctor's diagnosis. On the 3rd of March a son-in-law was notified and removed to Hospital. He had been delivering newspapers at the house, and had frequently sat there. On the 5th of March another member of the family, but living in a different street, was notified and removed to Hospital. On the 17th of March a daughter of the woman who did the washing at the house was notified and removed to the Hospital.

Another sequence of cases occurred at a house in Woolman Road. On the 31st December, 1908, a woman from this house was notified as suffering from Enteric Fever; on the 14th of February her daughter was notified; on the 27th of February a lodger and his two daughters were

notified ; and on the 17th of April another woman was notified who had been lodging in this house some time previously.

The Widal Blood Test has been an aid to diagnosis, and is carried out by the Corporation for all medical practitioners without charge.

In two cases no specimen was taken, in 5 cases the result was negative, while the remaining 41 all gave positive results.

Of the five cases which gave negative results, two were too ill for removal to Hospital, and both died after passing through typical Enteric Fever symptoms. Of the other three cases which were removed to Hospital, two passed through typical courses of the disease, while the third one had not the typical symptoms.

In all instances where there are cases under observation, or where the patient is treated at home, Typhoid pails are sent, into which the excreta are placed. These pails are changed daily, and their contents burned at the Destructor.

PUERPERAL FEVER.

Notifications, 4 ; Deaths, 3.

Of the four notified cases, three were attended by a medical practitioner at the time of confinement, and one by a Registered Midwife. In each case where a Midwife was present, she was suspended from attending any other case for a fortnight after she had left, and her instruments and apparatus were thoroughly disinfected.

The onsets of the four cases occurred 1, 2, 3, and 16 days respectively after confinement, and the fatal cases died 4, 12, and 28 days respectively after the onset of the Puerperal Fever.

ERYSIPELAS.

Notifications, 38 ; Deaths, 0.

The following were attributed as the causes of the disease :—

Injury	6
Cold	8
Vaccination	1
Boils	1
No detected cause	22
	—
	38
	<u> </u>

The location of the disease was as follows :—

Face and neck	32
Arm	1
Leg	4
Not stated	1

Two of the cases were removed to the Sanatorium for treatment. One was a patient taken in from the Victoria Hospital, while the other was a steward on board one of the local steamers.

PRECAUTIONS TAKEN AGAINST THE SPREAD OF INFECTIOUS DISEASE.

DISINFECTION.

After cases of the chief notifiable diseases, the houses are fumigated with formaldehyde vapour after washing down the walls and furniture with a solution of perchloride of mercury, or spraying the walls with a solution of formaldehyde. The spraying machines purchased some years ago have given very good results. Clothes, bedding, &c., are removed to the Sanatorium, and disinfected in the steam disinfectors there ; 38,722 articles were so treated during 1909.

In the case of Typhoid Fever and Diphtheria the drains are flushed with a solution of chloride of lime, and in case of an outbreak of disease in a particular district, the sewers in the district are similarly treated.

After cases of Measles, and after deaths from Phthisis or Cancer, fumigation of the room with formaldehyde is carried out.

All typhoid excreta, whether of cases treated at the Sanatorium or at home, are collected in special pails and burned at the Destructor.

Disinfectants are distributed on application at the Health Office to the houses where infectious diseases have occurred.

The drains are tested after all cases of Enteric Fever and Diphtheria, and after Diarrhoea deaths.

The following circulars are left at houses where infectious disease exists :—

COUNTY BOROUGH OF BLACKPOOL.
PUBLIC HEALTH DEPARTMENT.

OUTBREAK OF INFECTIOUS DISEASE.

The following precautions are recommended in order to diminish as far as possible the risk of spread of the disease :—

I.—WHERE THE PATIENT IS TREATED AT HOME :—

The BEDROOM should be as remote as possible from other occupied parts of the house, and should be one with a fireplace. All unnecessary articles of furniture, and all carpets, curtains, and the contents of drawers and wardrobes, should be removed. A sheet should be hung outside the bedroom door, and kept constantly wet with a solution of disinfectant.

The ATTENDANT or NURSE should not undertake any other duties than attendance upon the patient. It is especially dangerous for her to do the cooking for any other members of the household. She should not sleep or take her meals in the sick room. She should keep inside the door of the patient's room a large apron which would cover her from the neck to the feet, and also cover the arms to the wrists (a night-dress answers this purpose admirably). She should, whenever entering the bedroom, put on this apron, and keep it on while in the room ; then on leaving she should take it off, hang it up on the inside of the door, and wash her hands in a solution of disinfectant, a basin of which should be kept constantly outside the bedroom door. The attendant should have some exercise in the fresh air daily. Motions from the patient should be received in a chamber containing some disinfectant.

Discharges from the patient's nose, ears, or mouth should be wiped with pieces of soft rag, and burned.

The sweepings of the bedroom floor should be burned.

Food not eaten by the patient should be burned, and not given to any of the other children.

Soiled linen must not be sent to a laundry, but should be placed in a solution of disinfectant, and then boiled in plain water.

Letters should not be written in a sick room, and all toys, books, etc., should be burned unless they have been efficiently disinfected. No persons from an infected house shall attend day school, Sunday school, or place of public resort. No books shall be borrowed from the Free Library.

SPECIAL PRECAUTIONS IN CASE OF TYPHOID OR ENTERIC FEVER :—

In addition to the above, all urine and fæces from the patient must be placed in the covered iron pail which will be provided by the Corporation, and will be changed frequently.

When the patient is considered to be free from infection, a warm bath should be given, with a little disinfectant in it, and clean, non-infected clothes put on. The bedroom should then be closed until the Corporation officials disinfect it.

II.—WHERE THE PATIENT IS REMOVED TO HOSPITAL :—

All clothing which has been used by the patient and the attendant should be left in the bedroom from which the patient is removed. The room should be closed and locked until the Corporation disinfectors arrive.

Three night-dresses or night-shirts should be sent with the patient to the Sanatorium.

When the patient is ready to get up; the parent will be notified by the Matron, and it is desired that ordinary outdoor clothes and a pair of slippers be then sent to the Sanatorium.

All articles of clothing should be distinctly marked with the patient's name.

All Library books must be handed to the Corporation disinfectors.

No children shall attend school from an infected house until a notice from the Medical Officer of Health is received, giving the date on which school can be recommenced, and this notice must be given to the head master or head mistress on the first day of return to school.

All disinfection is carried out by the Corporation free of cost. Disinfectant, with instructions as to the use of same, is supplied free of cost to infected houses on application at the Public Health Office.

Extracts from Acts of Parliament dealing with Infectious Diseases.

(1)—Any person who—

- (a) While suffering from any dangerous infectious disorder, wilfully exposes himself without proper precautions against spreading the said disorder in any street, public place, shop, inn, or public conveyance, or enters any public conveyance without previously notifying to the owner, conductor, or driver thereof that he is so suffering ; or
- (b) Being in charge of any person so suffering, so exposes such sufferer ; or
- (c) Gives, lends, sells, transmits, or exposes, without previous disinfection, any bedding, clothing, rags, or other things which have been exposed to infection from any such disorder ;

will be liable to a penalty of FIVE POUNDS, and also to pay the expenses of disinfection of the conveyance.

(2)—No owner or driver of a public conveyance shall be required to convey any person suffering from any dangerous infectious disorder, until he has been paid a sufficient sum to cover the loss or expense of disinfecting his conveyance.

(3)—Any person who knowingly lets for hire any house, room, or part of a house in which any person has been suffering from any dangerous disorder without the same and all articles therein liable to retain infection having been disinfected to the satisfaction of a legally qualified medical practitioner, as testified by a certificate signed by him, will be liable to a penalty of TWENTY POUNDS. (An Inn is included in this Section.)

(4)—And any person in letting, or shewing for the purpose of letting for hire, any such house, or part thereof, and knowingly makes a false answer to any question as to the existence then, or within six weeks previously, of any dangerous infectious disorder in such house, or part thereof, will be liable to a penalty of TWENTY POUNDS, or to *imprisonment*, with or without hard labour, for ONE MONTH.

(5)—Every person ceasing to occupy a house or part of a house in which any person has within six weeks previously been suffering from any infectious disease who, on being questioned by the owner thereof, or by any person negotiating for the hire of such house or part of a house as to the existence within six weeks previously of any infectious disease, knowingly makes a false answer, shall be liable to a penalty of TEN POUNDS.

(6)—No person, without the sanction in writing of the Medical Officer of Health, or of a registered medical practitioner, shall retain unburied elsewhere than in a public mortuary or in a room not used as a dwelling-place, sleeping-place, or workroom, FOR MORE THAN FORTY-EIGHT HOURS, the body of any person who has died of any infectious disease.

(7)—Any person who hires or uses a public conveyance other than a hearse for the conveyance of the body of a person who has died from any infectious disease, without previously notifying the owner or driver that the person whose body is to be conveyed died of infectious disease, and, after any such notification, any owner or driver of a public conveyance other than a hearse which has conveyed the body of a person who has died from infectious disease, who shall not immediately afterwards provide for the disinfection of such conveyance, shall be guilty of an offence.

(8)—Any person who shall knowingly cast into any ashpit, ash-tub, or other receptacle for refuse matter, any infectious rubbish without previous disinfection, shall be guilty of an offence.

The Corporation believe that during the prevalence of infectious disease many cases of violation of the law, and consequent danger to public health, arise from ignorance and want of forethought; to prevent neglect from this cause the Corporation thus specially call your attention to the above provisions of the law, ALTHOUGH SUCH NOTICE IS NOT NECESSARY, nor will the absence of it afford any excuse in the event of any offence being committed.

E. W. REES JONES, M.D., D.P.H.,

Medical Officer of Health.

INFECTIOUS DISEASE.

CAUTION.

Any parent or person in charge of anyone suffering from any Infectious Disease, that is, Measles, Chickenpox, Small-pox, Scarlet Fever, Diphtheria, Typhoid Fever, Membranous Croup, Typhus fever, Continued fever, Relapsing fever, Puerperal fever, Cholera, Erysipelas, or Plague, who fails to inform, forthwith, the Medical Officer of Health, is liable to a penalty of Forty Shillings.

The above measure will be strictly enforced, and Parents and others are also cautioned against visiting or allowing their Children to visit any other houses or attend school.

Attention is also called to the precautions mentioned on the enclosed form.

E. W. REES JONES, M.D., D.P.H.,

Medical Officer of Health.

PUBLIC HEALTH OFFICE,
BLACKPOOL.

SCHOOL CLOSURE, 1909.

SCHOOL.	Cause.	CLOSED.	
		From	To
Ashburton Road Council School.....	Measles.	March 30th	April 9th
All Saints' School (Infants' Department)	Do.	Easter Holidays.	April 23rd
Waterloo Road Council School (Infants' Department)	Do.	Do.	Do.
Devonshire Road Council School (Class 6, Infants' Department)	Do.	May 13th	May 27th
Revoe Council School (Class 2 (b), Infants' Department)	Do.	Do.	Do.
Revoe Council School (Infants' Department)	Do.	May 18th	May 27th
Devonshire Road Council School (Infants' Department)	Do.	Do.	Do.
Talbot Road R.C. School (Infants' Department)	Do.	June 8th	June 11th
Waterloo Road Council School (Infants' Department)	Do.	June 8th	June 11th
St. John's School (Infants' Dept.)	Do.	June 8th	June 11th
Adelaide Street Wesleyan School (Infants' Department)	Do.	July 10th	July 29th

THE SANATORIUM.

From the Table which appears at the end of this paragraph, it will be seen that a great deal of work has been done at the Sanatorium during the year. 45 cases remained over from 1908, viz. :—32 of Scarlet Fever, 6 of Diphtheria, and 7 of Enteric Fever. All these cases, with the exception of one Scarlet Fever, were discharged during the early part of 1909 in a convalescent condition. During the year 432 fresh cases were admitted, viz. :—290 of Scarlet Fever, 66 of Diphtheria, 38 of Enteric Fever, 23 of Measles, and 15 of other diseases. Thus during the year there were altogether 477 cases under treatment. Of these, 373 were discharged convalescent (viz. :—247 Scarlet Fever, 54 Diphtheria, 36 Enteric Fever, 23 Measles, and 13 others), 29 died during the year (9 Scarlet Fever, 14 Diphtheria, 5 Enteric Fever, and 1 other disease), and the remainder 75 in number (66 Scarlet Fever, 4 Diphtheria, 4 Enteric Fever, and 1 other disease) remained in at the of the year. These figures are the actual diseases under treatment, and vary somewhat from Table XIII. in the Appendix.

SCARLET FEVER.—322 cases of this disease were under treatment during the year. 15 males and 17 females remained in from 1908, and 141 males and 149 females were admitted during 1909. 123 males and 124 females were discharged convalescent. Five males and four females died, leaving in at the end of the year 28 males and 38 females. The average stay in hospital of the convalescent cases was 47 days, the longest being 137 days and the shortest 4 days. The average stay of the fatal cases was

21 days, the longest being 60 and the shortest 1 day. Thirteen of the cases were peeling on admission, and it will be understood how difficult it was to keep the prevalence of this disease under control, as most of these cases were not kept under isolation until the peeling commenced. The case mortality was 3.52 per cent. One nurse developed Scarlet Fever shortly after commencing her period of training. One interesting case of Scarlet Fever was that of a woman who had given birth to a child a few days before developing her disease. She was taken into a private ward, and during the whole course of her Fever she continued to suckle her child, with most satisfactory results. The child thrived well, and did not show any bad effects from its somewhat unique position.

On two occasions Chicken Pox was brought into the Scarlet Fever wards. The first case, directly or indirectly, infected six others, but the second case, fortunately, was isolated before she had time to infect other patients. On two occasions Measles was brought into the ward. The first case infected two others, but there were no extensions from the second case.

One Scarlet Fever case developed a typical attack of Diphtheria. The swabs of all the patients in the same ward were submitted for bacteriological examination, and 8 gave a positive result. These 8 cases were isolated, but did not develop any clinical signs of Diphtheria.

The incidence of any double infection in one ward causes a great deal of anxiety and careful watching of the other patients, but when a child is admitted with symptoms of one Fever, there are no possible means of knowing that

he is also in the incubation stage of another fever, and that within a few days the rash of the second disease will appear.

One case admitted as Measles proved to be Scarlet Fever.

With regard to the complications of Scarlet Fever, the following occurred :—

- (a) OTORRHŒA (discharging ears) and RHINORRHŒA (discharging nose), either singly, together, or in combination with some other complication, 58 cases.
- (b) ARTHRITIS (inflammation of the joints resembling Rheumatism), 16 cases.
- (c) MASTOIDITIS, 3 cases. All of these cases were successfully treated surgically.
- (d) SUPPURATING ADENITIS (inflammation of the glands of the neck proceeding to abscess formation) 5 cases. Swollen neck glands are almost constant accompaniments of Scarlet Fever, but it is rare for these to go on to the formation of pus, requiring surgical treatment. In one of the five cases the parents refused to allow any operative treatment, and, on their own responsibility, removed the child home.
- (e) NEPHRITIS (inflammation of the kidneys), 16 cases. Thirteen of these were only cases of transient albuminuria, but the other three suffered from hæmaturia also. One of these cases died, and one was not completely cured at the time of discharge from hospital.

(f) HEART COMPLICATIONS, 6 cases (1 of Pericarditis, and 5 of Endocarditis). One of these cases was taken home by the parents, and unfortunately succumbed to the complication within a week or two.

(g) PHLEBITIS OF LEG, 1 case.

There were two return cases during the year, and three of the cases developed typical secondary Scarlet Fever rashes after being in the hospital for two or three weeks.

DIPHTHERIA.—72 cases of this disease were under treatment during the year, viz., 25 males and 47 females. Six of these cases had remained in the Hospital from 1908, and 23 males and 43 females were admitted during the year. Twenty males were discharged convalescent, with an average stay in Hospital of 31 days; 34 females were discharged with an average stay of 39 days. Three males and 11 females died. Four cases remained in at the end of 1909, and will be dealt with in the 1910 Report. The case mortality of the Hospital cases was 20.6 per cent.

Five cases were admitted as "Suspected Diphtheria," but bacteriological examination gave negative results, and none of the common sequelæ were observed.

One case of Diphtheria contracted Scarlet Fever some weeks after admission, and from this three extension cases of Scarlet Fever occurred.

One case of Diphtheria developed a Chicken Pox rash three days after admission, and was promptly isolated, but three other extension cases occurred directly or indirectly from this one.

Of the common sequelæ of Diphtheria, Paralysis of the soft palate, as evidenced in a nasal tone of the voice and regurgitation of liquids through the nose, occurred in six cases. General Paresis occurred in three cases. The early and large administration of anti-diphtheritic serum is the reason for the small number of paralytic sequelæ.

ENTERIC FEVER.—45 cases of this disease were under treatment during the year, 7 of which had remained over from 1908, and 21 males and 17 females were admitted during 1909. 19 of the males and 17 of the females were discharged convalescent after an average stay in Hospital of 52 days, 2 males and 3 females died after an average stay of 8 and 16 days respectively, and 4 cases remained under treatment at the end of the year 1909. The case mortality of the Hospital cases was 11.1 per cent. Some particulars of the cases which did not exhibit the Widal Reaction are given on page 81. One case sent in as suspected Enteric Fever proved to be acute Pneumonia. One nurse developed the disease during the year, but made a good recovery. The following complications occurred :—Orchitis, 1 ; Perforation of bowel, 1 ; Intestinal hæmorrhage, 2 ; Phlebitis of leg, 1 ; Pleurisy and Pulmonary congestion, 1.

MEASLES.—23 cases of this disease were admitted during 1909, and all were discharged convalescent after an average stay in Hospital of 14 days.

ERYSIPELAS.—Two cases of this disease were under treatment, one being admitted from the Victoria Hospital, and the other being a steward on one of the local pleasure steamers.

From the observations which I have made on the various diseases it will be seen that the administration of a large fever hospital, such as ours, presents many difficulties. In many instances the diseases are so mild or atypical as to make the diagnosis difficult. Yet if they are left at home they may act as centres of infection for others.

TABLE XVIII.

CASES OF INFECTIOUS DISEASE REMOVED TO THE SANATORIUM :—

		Remaining in at end of 1908.	Admitted during 1909.	Discharged during 1909.	Died during 1909	Average stay of non-fatal cases.	Average stay of fatal cases.	Remaining in at end of 1909.
Scarlet Fever	{ M. F.	15 17	141 149	123 124	5 4	46 49	31 12	28 38
Diphtheria	{ M. F.	2 4	23 43	20 34	3 11	31 39	7 7	2 2
Enteric Fever	{ M. F.	3 4	21 17	19 17	2 3	52 52	8 16	3 1
Measles	{ M. F.	— —	14 9	14 9	— —	14 13	— —	— —
Other diseases	{ M. F.	— —	6 9	5 8	1 —	22 10	2 —	— 1
Totals	—	45	432	373	29	—	—	75

The details of the cost of the Hospital, as nearly as can be ascertained, are appended.

INFECTIOUS DISEASES HOSPITAL	
(SANATORIUM).	
	£
Matron	80
Porters, Nurses, and other salaries	550
Provisions for Inmates, Staff, &c.	788
Gas, Coal, Water, Rates, and Taxes, and Insurance	673
Furniture, Cutlery, Crockery, &c.	92
Building Repairs (erection of Storeroom, Painting, Lighting alterations)	162
Gardening	49
Materials for Uniforms	51
Medicine and Medical Appliances	108
Washing and Cleaning Materials	52
Advertising, Printing, and Stationery	26
Miscellaneous	73
	<hr/>
	2,704
Less Receipts from Inmates	146
	<hr/>
	2,558
Interest and Sinking Fund	1,420
	<hr/>
	<u>£3,978</u>

Up to 1905 it was customary to give the cost for the financial year ending 31st March, but it is obviously more desirable to give, if possible, the actual cost for the year under review. I have accordingly made arrangements which enable me to give the cost of the upkeep of the Hospital for the year beginning 1st January, 1909, and ending 31st December, 1909.

During the year ending 31st December the average stay in the Hospital of the 402 patients was 41 days.

Not including the interest and sinking fund in the Hospital expenses, the cost per week (per patient) was £1 2s. 11.5d., or £59 13s. 10d. per year, as compared with 19s. 4.5d. per week in 1908.

Deducting the amount received from patients, and including interest and sinking fund, the actual loss to the ratepayers of each patient averaged £1 13s. 9.4d. per week, as compared with £1 10s. 7.7d. per week in 1908. *In this expenditure, the cost of disinfecting articles sent from houses in the Borough to be disinfected is included.*

By keeping a daily record of all the inmates of the Hospital (patients and staff) I have been able to estimate accurately the cost of the maintenance per head per week. This includes feeding only (groceries, greengroceries, milk, fish, and meat), and works out at an average for the year of 3/10½ per head per week. It needs no further words from me to demonstrate the rigid economy practised at the Sanatorium, especially when it is remembered that all the articles of food are of the highest quality.

In concluding the portion of the Annual Health Report dealing with the Sanatorium, I desire to commend to you the able services rendered by the Matron, Miss Procter. The year under review has been the busiest in the records of the Sanatorium, yet the management and administration have been kept up to the usual high standard. The whole nursing staff have carried out their duties of attendance upon the sick in a conscientious, able, and willing manner, and their kindness to the patients in their charge has been unfailing.

PART III.

GENERAL SANITARY WORK.

NOTIFICATION OF BIRTHS ACT, 1907.

This Act has been in force since the 11th of February, 1908. Its main provisions are as follows :—

COPY OF SECTION I. OF THE NOTIFICATION OF BIRTHS ACT, 1907.

SECTION I.—The provisions of this section shall have effect in the area of any local authority in which this Act is adopted by that authority in accordance with the provisions of this Act :—

- (1) In the case of every child born in an area in which this Act is adopted it shall be the duty of the father of the child, if he is actually residing in the house where the birth takes place at the time of its occurrence, and of any person in attendance upon the mother at the time of, or within six hours after the birth, to give notice in writing of the birth to the Medical Officer of Health of the District in which the child is born, in manner provided by this section.
- (2) Notice under this section shall be given by posting a prepaid letter or postcard addressed to the Medical Officer of Health at his Office or Residence, giving the necessary information of the birth within thirty-six hours after the birth, or by delivering a written notice of the birth at the Office or Residence of the Medical Officer within the same time : and the Local Authority shall supply without charge addressed and stamped postcards

containing the form of notice to any Medical Practitioner or Midwife residing or practising in their area, who applies for the same.

- (3) Any person who fails to give notice of a birth in accordance with this section shall be liable on summary conviction to a penalty not exceeding twenty shillings: Provided that a person shall not be liable to a penalty under this provision if he satisfies the court that he had reasonable grounds to believe that notice had been duly given by some other person.
- (4) The notification required to be made under this Act shall be in addition to and not in substitution for the requirements of any Act relating to the registration of births; and any registrar of births and deaths whose sub-district or any part thereof is situate within any area in which this Act is adopted shall at all reasonable times have access to notices of births received by the Medical Officer of Health under this Act, or to any book in which those notices may be recorded, for the purpose of obtaining information concerning births which may have occurred in his sub-district.
- (5) This section shall apply to any child which has issued forth from its mother after the expiration of the twenty-eighth week of pregnancy, whether alive or dead.

The Act ensures that births shall come to the knowledge of the Medical Officer of Health at the earliest possible moment, and that in those cases where it is necessary to offer advice on the rearing of infants, the opportunity for doing so shall not be deferred until irreparable damage has been done by injudicious feeding.

The opposition on the part of several members of the Medical Profession to this Act still continues, and I cannot help feeling that this opposition is due to misapprehension on their part, and to a fear of undue interference of health officials with their patients. The sole object of the

Act is to enable the Medical Officer of Health to offer advice on infant rearing, but this is only done in those cases which are not under the care of any medical man (*i.e.*, unless there is a wish expressed by the medical man for the Health Visitor to visit). In my 1908 Report I endeavoured to make this matter quite clear, and hoped that my remarks would lead to a larger number, if not all, the births being notified. If the medical man himself notified the case, then I should have direct information that he was in attendance, and that the case was for the time being at least well looked after.

Of the 1,026 births which occurred during 1909, a Doctor was in attendance in 620 cases, or 60.4 %, while in the remaining 406, or 39.6 %, a certified midwife or some other person was in attendance.

Of the total births which were registered, 864, or 84.2 %, were notified under the Notification of Births Act. These 864 births include 476 of the 620 Doctors' cases, and 388 of the 406 cases attended by other persons.

The work under this Act has been done entirely by the Health Visitor, under the direction of the Medical Officer of Health, and no fewer than 1,762 visits have been paid, including primary and subsequent visits. Advice has been given on the storage of food, on the feeding and clothing of infants, and a special point has been made of urging upon mothers the importance of persevering with the breast milk, even if it has to be supplemented by cow's milk suitably prepared. A copy of the booklet "How to Manage a Baby," by Mrs. Frank Stephens, has been left at many of the houses. Upon subsequent visits, observations were made upon the progress of the child, and upon the use

which had been made of the advice proffered on the previous visit. I do not think it would serve any useful purpose to state statistically the observations of subsequent visits, for though in practically all cases the visits have been welcomed, in many, unsatisfactory methods of feeding have been resorted to. I have the satisfaction of reporting to the Health Authority that the work of the Notification of Births Act has had a salutary influence, and that we have observed results in many cases satisfactory and pleasing to the parents and to all concerned.

In several of the cases children have been visited daily for one month at a time until the critical stages of vomiting and diarrhoea were over, and in many cases also the food was prepared by the Health Visitor, and the effects noted sometimes by morning and evening visits.

One child apparently given up as hopeless at 10 weeks is now progressing favourably at the age of 9 months. Many requests come by post for visits, and in the case of illegitimate children, requests for suitable homes.

It is remarkable to find on what small excuse artificial feeding of infants is resorted to, and it would almost take the whole time of one official endeavouring to counteract the advice showered on young mothers to give up the breast because of wasting or continuous crying.

With regard to the number of illegitimate births, there cannot be any doubt that the fact of the penalty not being brought home to both parties equally is a very potent factor in maintaining the illegitimate birth-rate. In many, if not in most of the cases, the mother has to bear not only the discomfort and pain, but the expense and social stigma, while the father gets off free. In carrying out the work of

the Notification of Births Act, the following facts were discovered :—Two residents (one only 21 years of age) were the fathers of two children each by different mothers during 1909, and in neither of these cases did the mothers receive one penny towards the upkeep of the children, and many visits have had to be paid to help them by the way.

As in past years invaluable aid has been rendered by the Ladies' Sick Poor Association, and 92 cases were reported to them. I cannot express too warmly my indebtedness to the ladies of this Association for the readiness with which they have assisted all cases we sent to them. I have no hesitation in stating that life has been prolonged or death averted by their efforts, and I feel I can look forward with confidence to their continued co-operation with me and my colleagues in the Health Department.

In 13 cases it appeared that the parents were in some way or other deliberately avoiding or ignoring their liabilities and these cases were referred to the Local Inspector of the N.S.P.C.C., and his visits had a salutary effect.

COMPARATIVE TABLE OF BIRTHS REGISTERED
AND NOTIFIED.

	Registered under the Registration of Births Acts.	Notified to Medical Officer of Health under Notification of Births Act.
Doctor in attendance at Birth....	395	278
Doctor and Midwife	225	198
Midwife	368	360
Other Persons.....	38	28
Totals	1,026	864

BIRTHS NOTIFIED TO THE MEDICAL OFFICER OF HEALTH.

Notified.	Notification of Births.	Notification of Still-births.
By Doctors .	321	42
By Midwives.	409	21
By others ..	134	36
Totals....	864	99

MIDWIVES' ACT, 1902.

Total on Register 1st January, 1909.....	24
No. who sent in Form VIII. of intention to practise	21
No. of midwives who came to Blackpool during 1909	3
No. of midwives who left the district during 1909.....	1
Changes of address reported to Central Midwives' Board	4
Notifications received from midwives :—	
Sending for medical help.....	11
Still Births	21
Death of child	1
Visits paid by the Medical Officer of Health or Health Visitor	103

Of the 24 midwives on the roll on the 1st January, 1909, 17 are certified, because they were in practice for one

year prior to the passing of the Act, 3 have the L.O.S. certificate, 3 have the St. Mary's Hospital, Manchester, certificate, and 1 has a certificate from the Ladies' Charity Lying-in Hospital, Liverpool.

The working of the Midwives Act is one of the important branches of the work of the Health Department deputed to the Health Visitor. The midwives are kept under strict supervision, and frequent visits are paid to them, 103 visits being so paid during the year under review. The bags of four midwives were found unsatisfactory, and in several cases the Registers were not booked up to date. I warned the midwives of these conditions, which were then rectified. From and after the 1st of April, 1910, no woman may habitually and for gain attend women in childbirth other than under the direction of a qualified medical practitioner, unless she be certified under this Act. This will mean that several monthly nurses who are now practising in Blackpool will have to discontinue doing so, but it is not anticipated that there will be any shortage of midwives in the town, as several of those who are already certified have not sufficient work to do, and supplement their livelihood by keeping company-houses. The fees charged by midwives vary between 10s. 6d. and £2 2s., but they are chiefly 10s. 6d. to 15s.

Two cases of puerperal fever occurred in the practice of midwives during 1909. The midwives were temporarily suspended until their bags, &c., were disinfected. One midwife was temporarily suspended through the occurrence of septic poisoning in her hand, and another through cases of Scarlet Fever in the house.

EDUCATION (ADMINISTRATIVE PROVISIONS) ACT, 1907.

This work was carried out during the year by Dr. Victoria E. M. Bennett, who was appointed School Medical Officer in February, 1909. Dr. Bennett issued in August a report on six months' work carried out by her, and giving the results of the examination of 2,184 children. She resigned her post in August, on being appointed on the staff of the Durham County Council. I took advantage of this vacancy in the School Medical Officership, to make a report to the Education Committee, comprising suggestions for some alterations in the scheme of Medical Inspection of School Children. At the request of the Education Committee, I personally put before them my views, and as a result of our deliberations the following amended scheme was adopted :—

AMENDED SCHEME FOR MEDICAL INSPECTION OF SCHOOL CHILDREN,

as recommended by the Sub-Committee appointed for the purpose.

- (1) The duties connected with the medical inspection of school children shall be administered by the School Attendance Sub-Committee.
- (2) The Medical Officer of Health for the time being shall be the School Medical Officer, who shall be assisted by a fully-qualified medical man or woman appointed by the Education Committee.
- (3) The School Medical Officer shall be responsible to the School Attendance Sub-Committee for the sanitary and hygienic inspection of school buildings, and for the medical inspection of school children, but the whole of the administrative work of the latter shall be done in the Education office, and shall be under the control of the Director of Education.
- (4) The School Medical Officer or Assistant School Medical Officer shall report personally each month to the School Attendance Sub-Committee on the progress of the work of medical inspection.

- (5) The Director of Education shall be entitled to obtain from the School Medical Officer or his Assistant any return, advice, or assistance on any medical or hygienic matter connected with the Elementary and Secondary Schools in the town, and of any of the scholars thereof.
- (6) The following duties shall be performed by the School Medical Officer :—
 - (a) The medical inspection of school children as required in section 13 of the Education (Administrative Provisions) Act, 1907, *e.g.* :—
 - (1) The medical inspection of school children at regular intervals, and the notifying of parents of any defects revealed by the inspection. For the year 1908-9 this inspection may be confined to children entering or leaving school.
 - (2) The systematic supervision of the personal and home-life of the child.
 - (3) The prevention of the spread of infectious and contagious diseases.
 - (b) The keeping of such records and forms, and the making of such reports, as may be prescribed from time to time by the Education Committee or the Board of Education.
 - (c) Examining and reporting (as required by the Committee) upon all cases of children proposed to be transferred to :— an Industrial School ; a School for blind or deaf children ; or a School for mentally or physically defective children ; and the granting of the necessary certificates.
 - (d) The examining (when required by the School Attendance Sub-Committee) of any child who is stated to be physically unfit to attend school, and the granting of the necessary certificate.
 - (e) The examining of all candidates for Scholarships ; or for appointment as Pupil Teacher, P. T. Bursar, or Student Teacher ; and the making out of the necessary certificates.
 - (f) The reporting (when required by the Committee) on cases of Teachers absent owing to illness.

- (g) Submitting an annual report to the School Attendance Sub-Committee, and the making of such special reports as the Committee may require.
 - (h) Performing any other duties as may from time to time be required by the Education Committee or its Sub-Committees ; but medical or surgical treatment shall be no part of the School Medical Officer's duty.
- (7) The Director of Education shall be responsible for :—
- (a) The notifying of Head Teachers of each proposed inspection, and the forwarding of the necessary material.
- (8) Each Head Teacher shall be responsible for :—
- (a) Notifying the parents of the proposed inspection.
 - (b) The provision of the best facilities available for carrying out such inspection.
 - (c) Conducting and recording the physical and historical part of the inspection, *i.e.* :—Name, address, date of birth, height, weight, previous infectious disease, condition *re* boots, clothes, and other matters as shall be found desirable.
- (9) The Assistant School Medical Officer shall be appointed by the Blackpool Education Committee at a salary of £250 per annum, to devote his or her full time to the service of the Corporation, and whose primary duties shall be the medical examination of school children under the immediate direction of the Medical Officer of Health.
- (10) In cases of emergency, or when not engaged in school work, the Assistant School Medical Officer shall, by arrangement with the Chairman of the Health Committee, the Chairman of the Education Committee, and the Director of Education, act as assistant or deputy to the Medical Officer of Health.
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Dr. Dora E. L. Bunting was then appointed Assistant School Medical Officer, and she commenced her duties of Medical Inspection early in January, 1910. This work has been proceeding with much regularity and smoothness, and in my next Annual Report I shall be able to append a report as School Medical Officer for the year 1910.

With regard to the general sanitation of the Schools, these have been closed for infectious disease as shown on page 89, and classrooms and cloakrooms have been cleansed as occasion arose. Sanitary work has been done in the following Schools :—

DEVONSHIRE ROAD SCHOOL. — Front rainwater drains and yard surface repaired.

CLAREMONT SCHOOL. — Manhole covers sealed with Russian tallow.

ASHBURTON ROAD SCHOOL.—Manhole covers sealed with Russian tallow.

TALBOT ROAD SCHOOL.—Manhole covers sealed with Russian tallow, and w.c.'s limewashed.

CHRIST CHURCH SCHOOL.—Manhole cover sealed with Russian tallow.

WATERLOO ROAD SCHOOL.—Hold-fast fixed in manhole. Flushing tanks cleaned out. Manhole covers cemented and sealed.

REVOE SCHOOL.—Invert in manhole repaired.

VICTORIA SCHOOL.—School floor repaired. w.c.'s limewashed.

SOUTH SHORE SCHOOL.—Manhole cover sealed with Russian tallow.

BAINES SCHOOL.—w.c.'s limewashed.

ST. CUTHBERT'S SCHOOL.—Drains relaid. w.c.'s lime-washed.

MARTON INFANTS' SCHOOL.—w.c.'s lime-washed.

ALL SCHOOLS.—The w.c.'s, drains, and gullies at all the Elementary Schools in the Borough, and the Secondary School, were cleansed and disinfected during the August holidays, by order of the Education Committee.

A Memorandum to Medical Officers of Health and School Medical Officers upon Public Health Administration for the Prevention of the Spread of Infectious Disease occurring among children attending Public Elementary Schools, with special reference to the circumstances in which the closure of schools or the exclusion of individual scholars, may be necessary, was issued in September, 1909, I prepared the following pamphlet, and sent a copy to each of the Elementary Schools :—

INSTRUCTIONS OF THE MEDICAL OFFICER OF HEALTH WITH REGARD TO INFECTIOUS DISEASE AND SCHOOL ATTENDANCE.

Persons suffering from, or in contact with, Infectious Disease are to be excluded from School until the expiration of the periods mentioned below :—

SCARLET FEVER.

- 1.—PATIENTS :—(a) Hospital Cases. Two weeks after discharge.
(b) Home Cases. Two weeks after disinfection.
- 2.—CONTACTS :—(a) Hospital Cases. Two weeks after removal to hospital.
(b) Home Cases. Two weeks after disinfection.

DIPHTHERIA.

- 1.—PATIENTS :—(a) Hospital Cases. Four weeks after discharge.
(b) Home Cases. Four weeks after disinfection.
- 2.—CONTACTS :—(a) Hospital Cases. Two weeks after removal to hospital.
(b) Home Cases. Four weeks after disinfection.

ENTERIC FEVER AND ERYSIPELAS.
CONTACTS need not be excluded from school.

MEASLES.

- 1.—PATIENTS :—Four weeks from onset.
- 2.—CONTACTS :—(a) Infant Scholars. Three weeks from onset of last case.
(b) Other Scholars :—
 - I.—If had Measles. Not to be excluded.
 - II.—If not had Measles. Three weeks after onset of last case.

WHOOPIING COUGH.

- PATIENTS :—Six weeks, or as long as cough continues.
- CONTACTS :—(a) Infant Scholars. Same period as patient.
(b) Other Scholars :—
 - I.—If had whooping cough. Not to be excluded.
 - II.—If not had whooping cough. Same period as patient.

MUMPS.

- PATIENTS :—Three weeks.
- CONTACTS :—Not to be excluded.

CHICKEN POX.

- PATIENTS :—Three weeks, or until all scabs have disappeared.
- CONTACTS :—(a) Infant Scholars. Same period as patient.
(b) Other Scholars. Not to be excluded.

The above periods are liable to alteration in individual cases, on instructions from the Medical Officer of Health.

E. W. REES JONES, M.D., D.P.H.,

30th October, 1909.

Medical Officer of Health and
School Medical Officer, Blackpool.

FACTORY AND WORKSHOP ACT, 1901.

In accordance with the provisions of Section 132 of the Act, every Medical Officer of Health is required in his Annual Report to “report specifically on the administration of this Act in workshops and workplaces, and he shall send a copy of his Annual Report, or as much of it as deals with this subject, to the Secretary of State.”

The administration of the Act as regards Factories comes more under the Government Factory Inspector, which accounts for the fact that only 45 visits have been paid to Factories by our Inspectors during the year. If the Government Inspector on his visit to a Factory notices any deficiencies as to sanitary accommodation, &c., he sends word to the Medical Officer of Health, and then our Inspectors take the matter up.

There are 174 Factories registered in the Borough, and through the courtesy of Mr. Seymour, the Inspector of Factories for this district, I am able to give the following classification :—

<i>Building and Furnishing</i>		Forward.....		36
<i>Trades :</i>		<i>Engineering :</i>		
Joinery, Sawmill, and		Engineering Works and		
Cabinet Works	26	Smithies	6	
Stone Works and Mortar		Cycle and Motor Car		
Mills	5	Works	6	
Brick Works	5	Toolmaking	1	
	—36	Rolling Stock	1	
	—		—14	
	36		—	
				50

Forward..... 50

Coachbuilding and Wheel-
wrights 6
— 6

Preparation of Food, &c. :

Bake-houses 19
Sausage Works..... 5
Sugar Boiling 5
Ice Cream Making 2
Dairies 1
Aerated Water Manufac-
turing, Beer Bottling,
and Brewing 20
Other provisions 1
—53

Wearing Apparel :

Dress, Millinery, and
Tailoring 1
Hosiery Works 1
Bootmaking & repairing 9
—11

Letterpress Printing :

Letterpress Printing and
Bookbinding 12
—12
—
132

Forward..... 132

Lighting :

Electricity generating . 9
Gas Works 1
—10

Laundries :

Laundries and Carpet-
beating Works 11
Bedding, &c., Cleaning
Works 1
—12

Miscellaneous :

Art needlework..... 1
Electro-plating 2
Photograph Printing ... 1
Toy Making 1
Wire mattresses 1
Picture Frame Making. 1
Firewood Cutting 3
Wood Turning 1
Cigar Making 2
Provender and Corn Mills 6
Oyster-shell grinding ... 1
—20
—
Total..... 174

As regards Workshops, there are 609 in all registered in the Borough, classified as follows :—

Clothing, &c.:

Milliners	38
Tailors	48
*Dress.....	121
Boots and Clogs.....	88
Underclothing and baby linen	7
Hosiery.....	4
	—306

Forward532

Conveyances, &c.:

Wheelwrights and coach builders	2
Saddlery	5
Black and whitesmiths .	17
Cycle repairs	6
Gunsmith.....	1
	— 31

Food and Drink:

Bakers and confectioners	161
Sugar boiling	6
Beer bottling	2
Plucking place	1
Pickle works	1
	—171

Jewellery, &c.:

Watch repairing and Jewellery	7
Photo mounting and Picture-frame making .	18
	—25

Building Trades, &c.:

Plumbing and Painting .	17
Joiners	18
	— 35

Other Trades:

Hand Laundries	5
Cigar manufacturer	2
Brush manufacturer ...	2
Printers and Bookbinders	4
Fibrous Plasterer	1
Electrical Appliances ..	1
Basket manufacturer...	2
Monumental Mason	1
Venetian Blind manufac- turer	1
Motor Garage.....	2
	— 21

Furniture:

Cabinetmaking and uphol- stery	18
Wire mattresses	1
French polisher	1
	— 20
	—
	532

Total609

* NOTE.—Where Millinery and Dress are made on the same premises, they are classified under "Dress."

There were crossed off the Register during the year :—

Bakers and Confectioners	29
Milliners	2
Boots and Clogs	2
Dressmakers	3
Tailors.....	2
Joiners	1

The following new Workshops were added :—

Milliners	7
Dressmakers.....	10
Tailors.....	2
Joiners	4
Underclothing and Baby Linen	1
Boots and Clogs	1
Monumental Mason	1
Bakers and Confectioners	9
Blacksmith and Whitesmiths	1
Plumbing and Painting	1
Cabinet-making and Upholstering	3
Motor Garage.....	1
Watch Repairer.....	1
Sugar Boiling	1

I now submit, in the official form required by the Home Office, the following report as to the proceedings which have been taken in Blackpool in connection with the supervision of the Factories, Workshops, and Workplaces of the Borough in regard to those matters placed by the Act under the control of the local sanitary authority.

FACTORIES, WORKSHOPS, LAUNDRIES, WORK- PLACES, AND HOMEWORK.

I.—INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR
INSPECTORS OF NUISANCES.

PREMISES	Number of		
	Inspections	Written Notices	Prosecutions
FACTORIES (Including Factory Laundries)	45	5	.....
WORKSHOPS (Including Workshop Laundries)	508	30	.....
WORKPLACES (Other than Outworkers' premises)	322	...	.....
TOTAL	875	35	.....

2.—DEFECTS FOUND.

PARTICULARS	Number of Defects			Number of Prosecutions
	Found	Re-medied	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts :—*</i>				
Want of cleanliness	6	6	...	...
Want of ventilation .....	...	...	...	...
Overcrowding	1	1	...	...
Want of draining of floors .....	...	...	...	...
Other nuisances	35	38	...	...
†Sanitary accommodation ...	{insufficient	2	2	...
	{unsuitable or defective	1	1	...
	{not separate for sexes	3	2	...
<i>Offences under the Factory and Workshop Act :—</i>				
Illegal occupation of underground bakehouse (s. 101) .....	...	...	...	...
Breach of special sanitary requirements for bakehouses (ss. 97 to 100)	65	66	...	...
Other offences .....	...	...	...	...
(Excluding offences relating to Outwork which are included in Part 3 of this report).				
TOTAL	113	116	...	...

* Including those specified in Sections 2, 3, 7, and 8 of the Factory and Workshop Act as remediable under the Public Health Acts.

† Section 22 Public Health Acts Amendment Act, 1890, has been adopted.

3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.										OUTWORK IN UNWHOLESOME PREMISES, SECTION 108.				OUTWORK IN INFECTED PREMISES SECTIONS 109, 110.			
	Lists received from Employers.						Numbers of Addresses of Outworkers received from other Councils. (8)	Numbers of Addresses of Outworkers forwarded to other Councils. (9)	Prosecutions.		Number of Inspect-ions of Out-works' premises. (12)	In- stances. (13)	Notices served. (14)	Prosecu- tions. (15)	In- stances. (16)	Orders made (S. 110). (17)	Prosecu- tions (Sections 109, 110) (18)	
	Twice in the year.			Once in the year.					Failing to keep spec-imen of lists. (10)	Failing to send lists. (11)								
	Outworkers.		Lists. (5)	Outworkers.		Con- tract- ors. (6)												Work men. (7)
	Lists. (2)	Con- tract- ors. (3)		Work men. (4)														
Wearing Apparel :— (1) Making, &c. (2) Cleaning and Washing Lace, lace curtains and nets ... Artificial flowers Nets, other than wire nets Tents, Sacks Furniture and Upholstery Fur pulling Feather sorting Umbrellas, &c. Carding, &c., of buttons, &c. Paper Bags and Boxes Brush Making, Basket Making Racket and Tennis balls.... Stuffed Toys File Making Electro Plate Cables and Chains Anchors and Grapnels..... Cart Gear Locks, Latches, and Keys ... Pea picking Block cutting	46	22	57	7	5	8	7	8	—	—	78	—	—	—	—	—		
TOTAL	54	26	68	7	5	8	7	10	—	—	89	—	—	—	—	—	—	

4.—REGISTERED WORKSHOPS.

Workshops on Register (s.131) at end of 1909.		Number.
Important classes of workshops, such as workshop bakehouses, may be enumerated here.	Making of wearing apparel	306
	Workshop Bakehouses.....	161
	Preparation of other Foods, &c.....	10
	Building Trades	35
	Furniture Making, &c.	20
	Conveyances, &c.	31
	Other Trades	45
Total number of workshops on Register ...		609

5.—OTHER MATTERS.

CLASS.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133)	9
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5) {	Notified by H.M. Inspector 18
	Reports (of action taken) sent to H.M. Inspector... 18
Other.....	...
Underground Bakehouses (s. 101) :—	
Certificates granted during the year .....	...
In use at the end of the year	6
New Workshops reported to H.M. Inspector	18

The total number of visits under these Acts amount to the large total of 875. The 322 visits paid to "Workplaces" comprise 156 visits paid to Restaurant Kitchens and 166 to Ice Cream Workshops, but does not include 827 visits to Slaughter Houses which should probably be considered workplaces also, which would bring the number of visits to workplaces to 1,149.

113 defects under these acts were detected during the year, and 112 of them were remedied; also 4 defects remaining over from the previous year were remedied. 35 written notices were issued, the remainder of the work being done on verbal instructions.

It is satisfactory to notice that the list of defects includes only six cases of want of cleanliness and one case of overcrowding in workshops other than bakehouses.

The Workshops in Blackpool consist only of those which are necessary to a community of 63,000 people, *e.g.*, there are 38 Milliners, 48 Tailors, 121 Dressmakers, 88 Bootmakers, 161 Bakers and Confectioners, 17 Plumbers, 18 Joiners, 18 Cabinetmakers, &c. There is no staple industry apart from these.

The bakehouses were kept well under observation, and 347 visits were paid to them. Thirty-four verbal notices and 20 written notices were served relating to some sanitary points and these were attended to during the year.

With regard to Outworkers' lists, circular letters have been sent out at the beginning of February and August

asking for the lists, and these have been promptly sent in. It is not obligatory upon the Department to ask specially for the lists, and persons failing to forward their lists are liable to a penalty; yet the system adopted for the past two years has worked so satisfactorily that I propose continuing it in future years.

The conditions of the premises of the Outworkers were satisfactory from a sanitary point of view. These premises are kept well under observation, and I have instructed the Inspectors to visit each Outworker twice a year.

SHOP HOURS ACTS, 1892, 1893, AND 1895.

These Acts require that no young person (i.e., a person under the age of 18 years) shall lawfully be employed in a shop for a longer period than 74 hours, including meal times, in any one week, and that a notice to this effect must be exhibited in a conspicuous place in any shop where a young person is employed. The employer is liable to a fine not exceeding £1 for each young person employed in contravention of these Acts, and to a fine not exceeding 40s. for failure to exhibit the notice.

The working of these Acts is in Blackpool entrusted to the Department of the Medical Officer of Health.

Forty-one visits were paid to various shops, and in 3 instances there was a failure to exhibit the notice. Prosecutions were instituted in each case, and penalties of the costs of the cases were inflicted.

EMPLOYMENT OF CHILDREN ACT, 1903.

This Act requires that :—

A child shall not be employed between the hours of nine in the evening and six in the morning ;

A child under the age of eleven years shall not be employed in street trading ;

No child who is employed half-time under the Factory and Workshop Act, 1901, shall be employed in any other occupation ;

A child shall not be employed to lift, carry, or move anything so heavy as to be likely to cause injury to the child ;

A child shall not be employed in any occupation likely to be injurious to his life, limb, health, or education, regard being had to his physical condition.

If the local authority send to the employer of any child a certificate signed by a registered medical practitioner that the lifting, carrying, or moving of any specified weight is likely to cause injury to the child, or that any specified occupation is likely to be injurious to the life, limb, health, or education of the child, the certificate shall be admissible as evidence in any subsequent proceedings against the employer in respect of the employment of the child, a child being (unless otherwise mentioned) a person under the age of 14 years.

Eighteen visits were paid under this Act, and in four instances contraventions were found. Prosecutions were instituted, and in 2 cases fines of 5s. and costs, and in 2 cases fines of 2s. 6d. and costs, were inflicted. In one instance a child was found working as late as 10-10 p.m.

THE BLACKPOOL CLOSING ORDER, 1908. BARBERS' AND HAIRDRESSERS' SHOPS.

This Order, made under powers granted by the Shop Hours Act, 1904, states that from the 1st day of November, to the 30th day of April, both days inclusive, Barbers and Hairdressers' Shops shall close at the following hours :—

Mondays and Thursdays	8 p.m.
Tuesdays and Fridays	8-30 p.m.
Wednesdays	1 p.m.
Saturdays	10 p.m.

The following dates are exempted :—December 18th, to 24th, both days inclusive, and from Wednesday previous to Easter Day to the Wednesday following Easter Day, both days inclusive.

No complaints of breaches of this Order were received during the year.

SUPERVISION OF FOOD SUPPLIES.

This has been carried out during the year by Inspector Newby, under the direction and supervision of the Medical Officer of Health.

The following food places exist in the Borough :—

	1908	1909
	—	—
Butchers' shops	108 ..	108
Frozen Meat shops	25 ..	29
Fish and Chip shops	87 ..	91
Fish Dealers (mostly selling fruit and game) .	43 ..	45
Provision shops (mostly selling fruit)	239 ..	243
Provision shops (selling also Butchers' meat) .	26 ..	24
Fruit shops.....	73 ..	72
Restaurants where food is cooked	49 ..	59
Tea Rooms	14 ..	15
Oyster shops	11 ..	11
Confectioners' and Sweets Shops	209 ..	219
	—	—
	884 ..	916
	—	—

It will be observed that the 1909 figure is slightly in excess of that of 1908, though it is 20 below the figure for 1907.

During certain parts of the year the above list is considerably augmented by meat stalls, ice cream barrows, fish carts, &c., but it is not practicable to keep any record of them.

As in previous years, and as I trust will continue to be the case, the inspection of food has been one of the most important branches of the work of the Health Department, and I am pleased to be able to record that the efficiency and harmony of the work has been greatly aided by the co-operation of the food vendors in the town. It is greatly to be hoped that this good feeling will continue to exist.

Visits have been paid as follows :—

	1909
Milkshops and Dairies	181
Cowsheds in the Borough	197
Cowsheds out of Borough	14
Ice Cream Stalls	131
Ice Cream Workshops	166
Public Slaughter-houses	284
Other Slaughter-houses in the Borough	543
Other Slaughter-houses out of the Borough ..	33
Butchers' Shops	2,287
Other Shops	1,569
Restaurant Kitchens.....	156
	<hr/>
	5,561
	<hr/>

In all cases where vendors of food have any doubt as to the quality of any article they are invited to send to the Health Office, when the Medical Officer of Health or Food Inspector will at once call and pass an opinion on the article.

During the year the following articles were destroyed as unfit for food (not including meat from the Public Slaughter-houses) :—

2 Boxes of Frozen Ox Livers.
1,109 lbs. of Halibut.
1 Trout.
3 Boxes of Plaice—210lbs.
112 lbs. of Coal Fish
2 Boxes of Mackerel—224lbs.
24 Rabbits.
62 lbs. of Ox Kidneys.

It was not necessary to obtain a Magistrate's Order for destruction or institute legal proceedings in respect of any of the above articles,

I visited all the Restaurant Kitchens during the Summer, and I found practically all of them in a well-constructed and clean condition. My visits were quite unexpected, and in most instances were paid during the busiest part of the morning. The food was, without exception, of a good and wholesome nature. A few minor structural defects were detected and remedied at once. In one instance a back yard had been roofed over and converted into part of the food-preparing premises. The result was that the building, originally the yard w.c., communicated directly with the interior of the premises. This condition of affairs has now been altered.

SLAUGHTER-HOUSES AND THE INSPECTION OF MEAT.

At the commencement of the year there were in the Borough the Corporation abattoirs, and three other private slaughter-houses. One private slaughter-house at Revoe was closed during the year, and the occupier is now a tenant at the abattoirs.

The system of letting private premises at the abattoirs greatly facilitates the inspection of meat, and also obviates the occurrence of the nuisance inseparably attached to such buildings when scattered over the town.

Eight of the private premises were let to the following : Mr. J. Cocker, Mr. T. Holroyd, Messrs. Holt and Hull, Messrs. Valiant and Rainford, Messrs. Garsden and R. Hull, Mr. T. Laycock, the Argenta Meat Co., and the Co-operative

Society. Other premises were let for hide, skin, and fat warehouses, for gut scraping, for tripe boiling, and for blood drying.

The public slaughter-houses at the abattoirs were regularly used by a considerable number of butchers during the year.

The following animals were slaughtered at the abattoirs :—

	1908	1909
	—	—
Cows	99 ..	90
Heifers	2,159 ..	2,304
Bullocks	658 ..	556
Bulls	24 ..	9
Calves	736 ..	797
Sheep	35,070 ..	37,144
Pigs	1,340 ..	1,496
	<u>40,086</u>	<u>42,396</u>

These figures are in excess of those for 1908, and almost approach the figure for 1907.

There were killed at the private slaughter-houses (other than the abattoirs) in and out of the Borough, and brought into the Borough for sale :—

	1908	1909
	—	—
Heifers	936 ..	862
Bullocks	208 ..	208
Calves	1,040 ..	1,050
Sheep	12,428 ..	12,458
Pigs	100 ..	100

The decrease of heifers slaughtered is owing to one private slaughter-house having been closed during the year 1909.

The following were surrendered and destroyed during 1909 from the Corporation abattoirs :—

(a) Tuberculosis :

- 4 Pigs and viscera (652 lbs.)
- 3 Heifers and viscera (1,546 lbs.)
- 1 Bullock and viscera (424 lbs.)
- 1 Forequarter of Heifer and viscera (105 lbs.)
- Viscera of 3 Heifers.
- Viscera of 2 Cows.
- Heads and viscera of 6 Pigs.

(b) Abscesses :

- 2 Pigs' heads.

(c) Suffocated in transit :

- 3 Sheep and 1 Lamb.

One heifer was found dead on arrival in the railway truck at the abattoir siding. On microscopic examination of the blood the case was found to be one of anthrax. The case was reported to the Chief Constable, who carried out the necessary proceedings. The bloods of 16 other animals which had been in contact with it were examined microscopically, but were found to be all right.

The bloods of the 3 sheep and 1 lamb found dead were examined, but were found free of anthrax bacilli.

The following were surrendered and destroyed from other private slaughter-houses :—

1. Within the Borough :

- 1 Heifer and viscera (460 lbs.) Tuberculous.

2. Outside the Borough :

- 2 Pigs and viscera (160 lbs.) Tuberculous.

One pig brought from a farm to a shop in the Borough was found to be Tuberculous, and was destroyed by a Magistrate's Order. The farmer appeared genuinely ignorant of the fact that the pig was diseased, and no further action was taken in the matter.

THE MILK SUPPLY.

Strenuous efforts have been made during the year to maintain, and even to improve, the purity of the milk supply. There are 47 cowsheds within the Borough from which milk is sold. The structural conditions of these are on the whole satisfactory, and in all cases I have insisted that there shall not be any direct communication between the cowshed and the manure heap when these two are contiguous. With regard to the distribution of milk, I can only repeat the remarks which I made in last year's Health Report. There is still room for improvement in the process of milking. I hold most strongly that it is not unreasonable to ask that cows shall be groomed just as much as horses. Doubtless their excreta are of such a nature that the caking of it on the haunches of the cows is very apt to occur, but considering that their milk yield is of such importance in the daily diet, this should call for increased exertions in keeping the bodies of the cows clean. The udders should be wiped with a damp cloth, and the milkers should scrub their hands always before milking. It would be a decided improvement if the persons distributing the milk from house to house would keep the measuring can hanging inside the stock can, and not hanging out of their pockets. If these precautions were attended to there would be a great diminution in the amount of sediment which we so frequently see at the bottom of a glass of milk.

I think it would be well to repeat a few remarks on Tuberculosis which I made in the 1908 Annual Report :—

The Royal Commission on Tuberculosis have issued their Third Interim Report, and two important findings,

based on the results of numerous experiments, are contained therein :—

- (1). The milk of cows obviously suffering from Tuberculosis contain Tubercle Bacilli in the milk.
- (2). In the case of cows with slight tuberculous lesions, tubercle bacilli in small numbers are discharged in the fæces, while as regards cows clinically tuberculous, experiments show that the fæces contain large numbers of living and virulent tubercle bacilli.

These two points give a direct lead to our future action in supervising the milk supply. It was formerly thought that milk from tuberculous cows was non-infective provided there was no tuberculosis of the udder, but this is now disproved, and the milk of all cows suffering from tuberculosis of any part of their body must be considered dangerous for human beings and withheld from the public supply. Not only must the milk from these cows be withheld, but the cows must be excluded from the cowshed in which there are milch cows.

The following is a list of Milksellers in the Borough :—

Dairies selling by retail	14
Provision dealers selling by retail	52
Butchers " "	3
Persons meeting farmers' carts and delivering milk	
direct, not taking it home	20
Tea rooms and sweets shops selling in glasses as	
refreshments when asked for.....	74

Dining rooms selling as refreshments in glasses when asked for.....	10
Selling sterilised milk in bottles	1
	<hr/>
	174
	<hr/>

This number is a diminution of 8 on the 1908 figure.

No. of Cowsheds in the Borough during 1909, the occupiers of which sold milk during the year.....	47
Farmers outside the Borough bringing milk into the Borough	148
Ice Cream dealers	152

During 1909, as seen on page 124, Mr. Newby paid in all 197 visits to cowsheds within the Borough, 14 to cowsheds outside the Borough, 181 to Milkshops and Dairies, 297 to Ice Cream stalls, and workplaces, and 156 to Restaurant kitchens.

Fifty Milk dealers, and 22 Ice Cream dealers applied for registration during the year.

Twenty-seven persons have been cautioned for selling milk without being registered, and 3 letters were sent where cowsheds required limewashing. These were attended to at once.

No samples of ice cream were submitted for analysis, nor were any samples of milk submitted for bacteriological examination.

Two notices have been served on occupiers of cowsheds to have the premises so altered as to meet with our requirements, viz., one to provide more light and ventilation, and one to provide air space, light, and ventilation. Promises have been received in both cases to do the work.

SALE OF FOOD AND DRUGS ACTS.

Mr. Thomas Sanderson, the Chief Sanitary Inspector, is the Sampling Officer under these Acts.

182 Samples were taken, and were composed of the following :—

SAMPLE.	Total taken.	Not genuine.	Reference Numbers.
Arrowroot.....	1	—	
Borax	1	—	
Bread and Butter	3	1	719
Butter	37	—	
Camphorated Oil	2	—	
Cheese	1	—	
Cheese (Cheddar).....	1	1	770
Coffee	15	—	
Cream	6	1	776
Cream of Tartar	2	—	
Flour	2	—	
Gin	2	—	
Lard	1	—	
Lobster (Potted)	1	1	624
Lemon Peel	1	1	771
Margarine	1	—	
Milk	69	21	616, 656, 657, 660, 661, 662, 663, 675, 676, 677, 679, 681, 682, 683, 695, 699, 701, 703, 724, 728, 729
Mustard	5	—	
Pepper (White)	9	—	
Pork Pie	1	—	
Prawns	1	—	
Rice	7	4	685, 690, 713, 715
Sausage	1	1	734
Shrimps (Potted).....	4	1	669
Shrimps (Picked).....	1	—	
Tea	1	—	
Vinegar (Malt)	1	—	
Whisky (Irish)	2	—	
Whisky (Scotch)	3	1	777
Totals	182	33	

The following are some of the details of the samples certified "not genuine" :—

MILKS.

SAMPLE NO. 616, taken on the 25th of February, 1909.—Fat, 1.33 per cent. ; Solids not fat, 5.84 per cent., added water, 30 per cent., and deprived of one-third of its cream. The vendor of this sample was prosecuted, and fined £5, and £2 8s. 9d. costs.

SAMPLE NO. 656, taken on the 28th of April, 1909.—Fat, 2.68 per cent. ; Solids not fat, 8.40 per cent. The farm from which the milk was obtained is about $2\frac{1}{2}$ miles outside the Borough, and was visited on the 30th April. The cows appeared in poor condition, and no other reason could be given for the poverty of the milk in fats. The sample was of morning's milk, the cows having been milked about 5-30 a.m., and previously at 2-30 p.m. the day before. Five further samples were taken at this farm from separate cows, of which two were satisfactory, and three were below the standard. These three were :—

SAMPLE NO. 660.—Fat, 2.53 per cent. ; Solids not fat, 8.44 per cent. ; Total Solids, 10.97 per cent.

SAMPLE NO. 661.—Fat, 2.93 per cent. ; Solids not fat, 8.14 per cent. ; Total Solids, 11.07 per cent.

SAMPLE NO. 662.—Fat, 2.60 per cent. ; Solids not fat, 8.40 per cent. ; Total Solids, 11.0 per cent.

The average of the five samples was :—Fat, 2.91 per cent. ; Solids not fat, 8.75 per cent. ; Total Solids, 11.70 per cent.

SAMPLE NO. 657, taken on the 28th April, 1909.—Fat, 2.95 per cent. ; Solids not fat, 8.75 per cent. ; Total solids, 11.70 per cent. This was a sample of morning's milk brought from a farm about $1\frac{1}{2}$ miles outside the Borough.

SAMPLE No. 663, taken on the 24th May, 1909.—Fat, 2.73 per cent. ; Solids not fat, 8.26 per cent. Total solids 10.99 per cent. This sample was certified to be “deficient in cream, and was probably slightly watered.” This was a sample following on No. 616, and was taken from one of the customers of the vendor of that sample. An official sample was then taken from the vendor of No. 616, on the 4th of June, and the following is the result of analysis :—

SAMPLE NO. 679.—Fat, 2.47 per cent. ; Solids not fat, 8.68 per cent. “Deficient in cream.” The farm, which is four miles outside the Borough, was visited, but the vendor could give no reason for the poverty of the milk in fat, except the unequal intervals between milking. This took place at 5-30 a.m. and 1 p.m. He had 18 milking cows in good condition. No further action was taken.

SAMPLE NO. 675, taken on the 4th of June, 1909.—Fat, 2.65 per cent. ; Solids not fat, 11.77 per cent. ; certified as “deficient in cream.” The vendor of this sample informed the Sampling Officer from where he got his milk, and the farm, about $3\frac{1}{2}$ miles outside the Borough, was visited. There were 37 cows, milked at 5 a.m. and 1 p.m., and they appeared to be young stock in good condition. They were on good pasture land, and had provender twice daily. The reason given for the condition of the milk was the unequal intervals between milking.

SAMPLE NO. 676, taken on the 4th of June, 1909.—Fat, 3.43 per cent. ; Solids not fat, 7.87 per cent. ; certified to contain 7 per cent. added water. The vendor of this sample was seen, and he stated that the sample came out of a 10-gallon can containing partly his own milk and partly purchased milk. An unofficial sample was sent to us by the vendor of No. 676 of the milk which he purchased. It was taken on the 27th of June, and came from a farm four miles away. The analysis was :—

SAMPLE NO. 682.—Fat, 2.87 per cent. ; Solids not fat, 9.03 per cent. No further action was taken.

SAMPLE NO. 677 taken on the 4th of June, 1909.—Fat, 2.62 per cent. ; Solids not fat, 8.74 per cent. ; certified as "deficient in cream." The farm from which this milk came, about $2\frac{1}{2}$ miles away, was visited, but the vendor could give no reason for the condition of the milk, except the irregularity of intervals between milking, which took place at 5 a.m. and 1 p.m. There were 19 cows on the farm, all in good condition, on good pasture land, and had provender twice daily. No further action was taken.

SAMPLE NO. 681, taken on the 6th June, 1909.—Fat, 2.9 per cent. ; Solids not fat, 9.8 per cent.

SAMPLE NO. 683, taken on the 6th July, 1909.—Fat, 2.55 per cent. ; Solids not fat, 9.25 per cent.

The above two samples were non-official, and known to be genuine. Further remarks in regard to these samples will be found in another part of this report.

SAMPLE NO. 695, taken on the 8th of July, 1909.—Fat, 2.95 per cent. ; Solids not fat, 8.75 per cent. This was a

sample of Station milk. No further action was taken in this case. Further samples were taken at the Station, but much difficulty was experienced in finding the identical cans from which sample No. 695 was taken.

SAMPLE NO. 699, taken on the 9th of July, 1909.—Fat, 2.74 per cent. ; Solids not fat, 9.29 per cent. ; certified as “deficient in cream.” The farm from which the milk was obtained was visited, and is close to the boundary of the Borough. Nothing was observed which would account for the condition of the milk. There were 10 cows at grass on good pasture, and they were provendered once daily in addition. The cows are milked only by the farmer and his wife. A warning letter was sent.

SAMPLE NO. 701, taken on the 9th of July, 1909.—Fat, 2.67 per cent. ; Solids not fat, 8.88 per cent. Certified as “deficient in cream.” The farm from which this sample was obtained is about 7 miles away, and was visited on the 20th of July. No reason could be given for the condition of the milk, except the unequal intervals between milking, which took place at 5 a.m. and 1 p.m. There were 21 cows at grass. Two of them appeared to be in poor condition, but the others were in good condition. The pasture was not good, and there was but little grass on it. A warning letter was sent to the farmer.

SAMPLE NO. 703, taken on the 9th of July, 1909.—Fat, 2.73 per cent. ; Solids not fat, 8.78 per cent. Certified as “deficient in cream.” This was a sample of dairy milk, and was purchased from another dairy, and delivered direct to customers. Further samples will be taken from the same vendor.

SAMPLE NO. 724, taken on the 3rd of September, 1909. Fat, 2.87 per cent. ; Solids not fat, 8.63 per cent. This sample was from a farm about $4\frac{1}{2}$ miles outside the Borough. The paucity of fat was probably due to the unequal intervals of milking, and no further action was taken.

SAMPLE NO. 728, taken on the 3rd September, 1909.— Fat, 2.95 per cent. ; Solids not fat, 8.95 per cent. This sample was from a farm $3\frac{1}{2}$ miles outside the Borough. No action was taken.

SAMPLE NO. 729, taken on the 3rd September, 1909.— Fat, 2.85 per cent. ; Solids not fat, 9.10 per cent. Certified as “deficient in cream.” The sample came from a farm 3 miles outside the Borough. No action was taken.

This accounts for all the samples of milk certified as “Not genuine.” It will be observed that in many of the samples where there is a deficiency in cream, a longer interval takes place between the afternoon and morning’s milking than between the morning and afternoon. This is due to the fact that the milk has to be delivered in the town before 4 p.m. for afternoon tea, and as many of the farms are some distance outside the Borough, the afternoon milking has to take place at 1 p.m. or soon after. Our previous experience has been borne out, that the shorter the interval between milking the greater is the percentage of cream in the milk. In some instances there is as much variation in the intervals of milking as 7 to 17 hours.

Some of the samples, though they contained less than the standard amount of fat, were known to be genuine milk, and not tampered with. It is obvious that a diminution in

the percentage of fat alone, if unaccompanied by a diminution in the percentage of "solids not fat," does not point conclusively to an adulteration of the milk either by an addition of water or subtraction of cream.

Some observations have been made upon the milk of one cow (aged 4 years) at the farm from which the samples No. 681 and 683 were taken. It had calved seven days previous to the first sample being taken, and had calved once previously.

The samples were all of morning's milk, and on analysis gave the following results :—

Number of Sample.	Date Sample Collected.	Fat.	Solids not Fat
681	6th June, 1909	2.9	9.8
683	6th July, 1909	2.55	9.25
705	7th August, 1909 . .	3.15	8.95
747	6th October, 1909 . .	3.75	9.55
765	4th November, 1909	3.80	9.25
781	6th December, 1909	3.15	9.0
782	10th January, 1910. .	4.05	8.9
783	2nd February, 1910. .	3.85	8.95

The tendency of the milk has been to become richer in fat.

BREAD AND BUTTER.

SAMPLE No. 719.—This sample was purchased at one of the restaurants where tea and bread and butter was asked for. The Analyst certified that there was only margarine on the bread, and the vendor was prosecuted and fined 40s. and £1 15s. costs.

CREAM.

SAMPLE No. 776.—This was certified to contain 0.45 per cent. of borates, calculated as boracic acid. The case was reported to the Health Committee, and on their instructions a warning letter was sent, stating that further samples would be taken.

This sample was taken as a result of sample No. 697, which contained 0.1 per cent. of borates, and was not labelled. A warning letter was sent, and the subsequent sample (No. 776) was taken from the party from whom the vendor of sample 697 bought his cream.

The above is the only sample of Cream which is designated as “not genuine.” The other samples gave the following results :—

SAMPLE No. 642.—0.24 per cent. borates.

SAMPLE No. 686.—0.25 per cent. borates (labelled).

SAMPLE No. 697.—0.10 per cent. borates (not labelled).

SAMPLE No. 756.—0.4 per cent. borates (labelled).

SAMPLE No. 774.—0.26 borates.

POTTED LOBSTER.

SAMPLE No. 624 certified to contain a small amount of Lobster, coloured with a coal-tar dye, and containing 0.29 per cent. of borates calculated as boracic acid.

The label stated "Lobster" in prominent letters, and in smaller letters underneath "Improved with the addition of other choice fish." No mention was made of the preservative. Much improvement has taken place in the labelling of this article. In previous years, no mention was made of any other constituent than lobster, as is evidenced by labels which we have at the office, but as a result of sampling, other words were added disclosing the admixture, though in many cases the extra words are in comparatively small print.

LEMON PEEL.

SAMPLE No. 771.—Certified to be exhausted Lemon Peel. A letter was written to the vendor of this article.

RICE.

SAMPLE No. 685.—Certified to contain about 1 per cent. of talc. This sample was taken in consequence of a report of the Local Government Board on the facing of rice. A letter was written to the vendor of the article, calling his attention to the excessive amount of talc.

A subsequent sample was taken and certified as genuine

SAMPLE No. 690.—Certified to contain 0.1 per cent. of talc. No action was taken.

SAMPLE No. 713.—Certified to contain 0.39 per cent. of talc. No action was taken.

SAMPLE No. 715.—Certified to contain 0.61 per cent of talc. No action was taken.

SAUSAGE.

SAMPLE No. 734.—Certified to contain 0.3 per cent. of borates, calculated as boracic acid. No action was taken.

POTTED SHRIMPS.

SAMPLE No. 669.—Certified to contain 0.7 per cent. of borates calculated as boracic acid. A warning letter was sent to the vendor of the article, and further samples will be taken.

Other samples of this article gave the following percentage of preservatives :—

No. 621.—0.13 per cent. borates.

No. 639.—0.20 per cent. borates.

No. 688.—0.2 per cent. borates.

SCOTCH WHISKY.

SAMPLE No. 777.—Certified to contain 67 per cent. of alcohol, which is 33 degrees under proof and 8 degrees below the standard for whisky. The case was reported to the Health Committee, and on their instructions a warning letter was sent, and further samples will be taken.

PORK PIE.

A sample of Pork Pie contained 31.5 per cent. Meat, 68.5 per cent. crust, and 0.07 per cent. of borates.

UNOFFICIAL SAMPLES.

Numbers 619, 658, 659, 660, 661, 662, 663, 681, 682, 683, 705, 706, 747, 765, 781.—Fifteen unofficial samples

have been taken during the course of the year, all of which were milk. Seven of these were appeal samples in cases where the official sample gave an unsatisfactory analysis, and 7 of them were samples taken from one cow at monthly intervals.

CHEAP SAMPLES.

It came to the knowledge of the Sampling Inspector that a certain shop was selling articles at what was considered below the cost price. Samples were taken from this shop with the following results :—

SAMPLE NO. 770.—Bought as Cheddar Cheese, was certified to be not English Cheddar.

SAMPLE NO. 771.—Bought as Lemon Peel, was certified to be exhausted Lemon Peel.

SAMPLE NO. 773 was certified to be Malt Vinegar of poor quality.

A letter was written to the vendor of these articles calling his attention to the poor quality of the goods bought.

FERTILISERS AND FEEDING STUFFS ACTS.

Mr. Sanderson, the Chief Sanitary Inspector, is the Sampling Officer under this Act, and only one application was received by him to have samples analysed. This was from a farmer who sent oats to a mill to be made partly into crushed oats and partly into oatmeal. On its return the crushed oats were refused by the farmer's horses, and a sample was sent to the Analyst, and also a sample of the oatmeal, but both were said to be genuine and satisfactory.

INSPECTION OF NEW HOUSES.

On completion of building, and before occupation, the Borough Surveyor notifies the Medical Officer of Health of any new houses. They are then examined and reports made thereon and sent to the Surveyor, and if satisfactory, an inhabiting certificate is issued by him. 401 houses were examined during the year by my department. In 29 cases the drains were unsatisfactory, 48 w.c.'s were of defective construction, and 127 houses were without ash receptacles at the time of inspection. Most of the defects in the drains and water-closets were repaired.

The large number of houses without ash receptacles is due to the fact that the landlord does not provide them until immediately before the house is occupied.

It is satisfactory to note that all new houses are now built on well concreted sites.

STORAGE OF HOUSEHOLD REFUSE.

The suitable storage and the efficient collection and destruction of household refuse is one of the most important items in maintaining the sanitation of all communities, and the importance of its supervision in such a town as Blackpool cannot be over-estimated.

I am pleased to report that the large brick ashpits holding a large quantity of refuse are quickly being replaced by galvanised iron bins, with tight-fitting covers. The former structures, holding as they do for several days

decomposable organic matter, are offensive and insanitary. They serve as breeding ground for flies, and there foster those zymotic conditions (especially Infantile diarrhœa) which are carried by flies.

No fewer than 1,605 visits were paid during 1909 for the purpose of inspecting ash receptacles. Nineteen modified ash receptacles were repaired, 16 ashpits were abolished, and 283 galvanised ashbins were provided. 298 Preliminary and 96 Council notices to provide galvanised ashbins were issued.

FORMATION, PAVING, &c., OF STREETS.

The Borough Surveyor has kindly supplied me with the following list of streets made during the year 1909 :—

16 FRONT STREETS.

Thomas Street
 Whitley Street
 Devonshire Road
 Bryan Road—Part of
 Claremont Avenue—Part of
 Hesketh Road
 Lonsdale Road
 Central Road
 Camden Road
 St. Alban's Road
 Lune Grove—Part of
 Levens Grove—Part of
 Wyre Grove—Part of
 Newcastle Avenue
 Lyceum Avenue
 Alexandra Avenue

16 BACK STREETS.

From Devonshire Road to Thomas Street
 Behind Queen Street and Springfield Road
 Behind Queen Street and Dickson Road
 Between Warley Road and Redver's Terrace
 On North Side of Hornby Road
 On East side of Sherbourne Road
 Behind Warley Road—(North side)
 Behind Whitegate Drive on South side of Palatine Road
 On North side of Camden Road
 Between Lune Grove and Wyre Grove
 Between Wyre Grove and Levens Grove
 Between Levens Grove and Bela Grove
 Back Central Road from Rothsay Road to Back Levens Grove
 Between Rothsay Road and Lune Grove
 Between Lyceum Avenue and Alexandra Avenue
 Behind Newcastle Avenue from Lyceum Avenue to Alexandra Avenue

1 PASSAGE.

Back Braithwaite Street, adjoining Salt Water Works.

HOUSING OF THE WORKING CLASSES ACT.

It has not been considered necessary to conduct any work under this heading during the year 1909.

OFFENSIVE TRADES.

The following exist in the Borough :—

Blood Drier—At Public Slaughter-house	.....	1
Tripe Boilers	Do.	2
Gut Scrapers	Do.	1
Fat receiving depot	Do.	1
Hide, skin, and fat depot	Do.	1
Rag and bone depots in the Borough	.....	3

The first six premises were under daily inspection. The last three were visited weekly, and found satisfactory.

No legal proceedings were instituted during the year for carrying on offensive trades without permission.

COMMON LODGING-HOUSES.

Under The Blackpool Improvement Act, 1901, sec. 47, the three Common Lodging-houses previously existing were re-registered. These houses, with their accommodation, are as follow :—

Eden Street160 adults and 1 child

Seed Street 56 adults and 1 child

Gavan Street 148 adults and 22 married couples,
or 217 adults and 1 child.

918 visits of inspection were paid, and it was found on the whole that the Lodging-houses were kept in a cleanly condition, and managed satisfactorily.

SMOKE NUISANCES.

Nine full half-hour observations have been made, and in one case the limit of $2\frac{1}{2}$ minutes black smoke in the half-hour was exceeded. This was the Grand Theatre, and the proprietor was prosecuted, when an order for abatement was made, and a penalty of 20s. and 9s. 6d. costs was inflicted. Eleven minutes of black smoke in the half-hour had been emitted in this case.

Many observations of shorter periods have also been made, and attention called to the emission of black smoke even where the limit had not been exceeded.

It is a most important item in maintaining the reputation of Blackpool as a health resort that the atmosphere shall be kept as free from smoke as possible.

SANDS INSPECTION.

The sands and foreshores have been kept well under observation during the year, 266 visits having been paid.

Copies of the daily reports on the Sands are sent to the Borough Surveyor, and from them he prepares charts which represent in a vivid form the days on which any solids are observed, and also the direction of the wind. Observations of previous years have been confirmed, *i.e.*, the solid deposits on the sands occur during strong westerly winds.

During the summer of 1909 temporary screens, consisting of vertical bars $\frac{1}{2}$ in. apart, were put in the sewage chamber in Manchester Square, and by comparing the chart for 1909 with the corresponding one for 1908 it is at once observed that the screening apparatus had a markedly beneficial effect in reducing the number of days on which solids were present on the sands.

The result of our experience of the temporary screens has convinced me that permanent screens suitably fixed in a ventilated chamber would obviate almost entirely the

undesirable conditions which have prevailed on certain occasions during past seasons.

The sanction of the Local Government Board for the expenditure of a sum of £1,200 has been obtained for the construction of screens according to plans prepared by the Borough Surveyor.

GENERAL SANITARY WORK.

As far as possible, the work of the Health Department has been described under various headings in the preceding pages. In addition to this, a vast amount of sanitary work of a miscellaneous nature has been carried out.

A very strict watch has been kept upon temporary buildings in back yards, and when new ones were detected, they were promptly reported to the Borough Surveyor, who took all necessary steps for their removal. These buildings not only tend to obstruct light and deduct from rear space of dwellings, but are also frequently used to keep pigeons, poultry, &c., and this practice should be checked in back yards in crowded areas.

The attention of the Borough Surveyor has been called during the year to 60 back streets which, being unpaved, have become dirty, and allowed collections of water on their surfaces in wet weather.

Thirty-five reports have been sent in to the Cleansing Superintendent. These referred to gullies in 19 streets, manholes in six streets, sewers in two streets, 3 dirty back

streets, and other miscellaneous matters such as dirty cab ranks, fish offal, &c. All the complaints received immediate attention.

I referred in the last Annual Report to the small percentage of inhabited houses whose drainage system was found entirely satisfactory on the first test, and I pointed out how this matter was an important item in determining the future work of the Health Department.

The same remarks apply to the year under review, for only 58 houses were satisfactory, whilst 215 were unsatisfactory. In many of these cases the defects were of a minor character, and quickly remedied, yet the figures which I have given emphasise the importance of continued supervision of house drainage. 361 houses were passed off during the year after drainage defects had been repaired.

During the course of drainage work an interesting condition of an air-blocked sewer was met. The front rain-water drains of a block of houses in a street in the centre of the town were blocked. This block of houses contained occupied basements, and slop water, &c., was poured down the front rain-water drains. On removal of the rodding eye from the manhole chamber, the sewage in the blocked drains immediately flowed away freely, pointing to the fact that the pressure of air in the sewer had held back the sewage. Had the sewer been more efficiently ventilated the condition of affairs would not have arisen.

The matter of freer sewer ventilation in the town still awaits attention.

The storage of manure for an undue length of time in close proximity to houses requires much supervision, no fewer than 788 visits having been paid in this connection during the year. The bye-laws require the occupier to have the manure completely removed once a week, and also to have a properly constructed manure receptacle. I think these bye-laws should be strictly enforced.

The tents, vans, and sheds have been kept under strict supervision as regards cleanliness, &c., and 140 visits were paid during the year in this respect. A sufficient water supply and suitable sanitary conveniences have been enforced in all instances.

The gipsy encampments on the sand hills have all been removed with the exception of one on Shutt's estate, this one being occupied by the caretaker of the estate.

105 new w.c.'s have been fixed in lieu of privies, pail closets, and defective w.c.'s. 24 privies have been abolished during the year. There now remain in existence 2 cesspools and 12 pail closets at the Pleasure Beach; 7 cesspools, 15 pail closets, and 5 privies in other parts of the Borough. The small number of these in a town of 63,000 population is highly satisfactory.

The huge total of 19,252 visits paid by the staff of the Health Department is detailed in the summary which appears at the end of this portion of the report. A study of this summary will reveal the fact that all the branches of sanitary administration have received attention during the year. Many items appear in that summary to which special reference has not been made, yet they are of importance in preserving our healthy surroundings. A few of such

items are :—Drains unblocked, waste pipes trapped and disconnected, rain-water pipes and roof gutters repaired, houses cleansed, back yards repaired, animals removed from improper situations, rooms ventilated.

It is pleasing to notice that it was necessary to serve only 150 statutory notices during the year, while 940 verbal or preliminary notices were issued. The willingness of owners and occupiers of property to carry out our requirements during the year has again been a marked feature. In many cases our requirements have exceeded what could be legally enforced, but when the advantage to be obtained has been pointed out by the Chief Sanitary Inspector little difficulty was found in getting the work done.

Apart from the food inspection and the Health Visitor's duties, the work has been carried out by the Chief Inspector, Mr. T. Sanderson, and his staff of assistants. Mr. Sanderson's intimate knowledge of the conditions of the town, his acquaintance with many of the property owners, tradespeople, &c., and the thoroughness of the work done under his supervision, have combined to render our sanitary campaign thoroughly efficient.

After several deliberations the Town Council decided to adopt the Public Health Acts Amendment Act, 1907, with the exception of certain sections and sub-sections which were deemed unsuitable. The Order of the Local Government Board putting this Act in force has not yet been received.

I have no hesitation in stating that the responsibilities and duties which have been put by the Blackpool

Corporation upon their Health Department have proved a sound and remunerative investment, leading to a condition as represented by Vital Statistics, of improved health, longer life, and fewer deaths.

Great assistance has been rendered me during the year and in the preparation of this Report by the Chief Clerk, Mr. Berry, and his staff of assistants. The system of book-keeping and card registration practised in our office facilitates reference to all work done by the Department, and only a few weeks ago I noticed that reference to it was made in the Health Report of an important city in the south-west of England.

PROSECUTIONS IN 1909.

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MONTHS.	ACT.	DETAILS OF OFFENCE.	RESULT.
April	Food and Drugs Acts	Water added to milk	Fined £5 and costs
September	Public Health Act, 1875	Chimney emitting black smoke so as to be a Nuisance	Fined 20s. and costs
September	Employment of Children Act, 1903	Employing child under 14 years of age after 9 p.m.	Fined 5s. and costs— 2 cases
September	Do.	Do.	Fined 2s. 6d. and costs
September	Do.	Do.	Do.
September	Shop Hours' Act, 1892	Failure to exhibit Shop Hours Act Card	Ordered to pay costs
September	Do.	Do.	Do.
September	Do.	Do.	Do.
October	Food and Drugs Acts	Selling Bread and Margarine as Bread and Butter	Fined 40s. and costs

SUMMARY.				1908.	1909.
				—	—
Complaints received	...	...	...	351	311
Visits and Inspections (Total)	...	...	...	15,858	19,252
Number of Houses fully inspected	...	...	...	836	1,051
Number of inspections of work in progress	...	...	...	2,711	3,318
Visits to houses and other premises	...	...	...	2,207	2,843
Re-inspections in relation to nuisances under notice	...	...	...	1,033	1,336
Inspections of Factories and Workshops	...	...	...	156	206
Inspections of Bakehouses	...	...	...	129	347
Inspections of Common Lodging-houses	...	...	...	952	918
Inspections of Manure Heaps	...	...	...	978	788
Sands Inspections	...	...	...	214	266
Visits and Enquiries in relation to Infectious Diseases	...	...	...	3,398	4,824
Enquiries into Deaths	...	...	...	801	775
Smoke observations (half-hour duration each)	...	...	...	10	9
Visits under Shop Hours Acts	...	...	...	33	41
Visits made under Midwives' Act, 1902	...	...	...	78	103
Visits to Tents, Vans, and Sheds	...	...	...	137	140
Inspections of Back Passages	...	...	...	35	169
Visits to Houses where Births have occurred	...	...	...	1,602	1,872
Visits under Employment of Children Act	...	...	...	15	18
Inspections of Premises re Trade Refuse	...	...	...	494	147
Manholes Inspected	...	...	...	39	81
Notices Served for the Abatement of Nuisances—					
Councils	..	..	..	92	150
Preliminary	..	..	..	749	686
Verbal	..	..	..	142	254
House Drains Tested—Total Number of Tests made..				1,398	1,694
New Houses Examined—					
Drains	{	Satisfactory	..	390	372
		Unsatisfactory on first test	..	28	29
		Rendered satisfactory after first test	..	*	29
W.C.'s	{	Satisfactory	..	492	543
		Of defective construction	..	46	48
Ash Receptacles	{	Satisfactory	..	290	276
		Unsatisfactory	..	111	127
Site of House	{	Satisfactory	..	401	401
		Unsatisfactory	..	—	—

* Included in total tests.

		1908.	1909.
Other Houses	{ (1st test) {	—	—
Drains		54	58
		239	215
House Drains re-tested during re-laying		542	630

Houses passed off as satisfactory after drainage defects

repaired	145	361
Number of Houses where sanitary defects were found...	870	1,029
Number of Houses where sanitary defects were remedied	1,057	1,301
Number of sanitary defects remedied	2,300	3,205

Drains.

Drains laid, re-laid, disconnected, and ventilated ..	119	283
Drains repaired and cleaned out	407	597
Unsuitable gully traps replaced by properly trapped gullies and new gullies fixed	46	46

W.C.'s.

New w.c.'s fixed in lieu of privies, pail closets, and

defective w.c.'s	68	105
Water closets repaired	143	200
Water closets unblocked	49	52
Fittings and water provided for w.c.'s.. ..	36	126
W.C. soil pipes repaired and ventilated	47	77
Earth Closets provided	2	1

Cesspools and Privies.

Manure receptacles provided	8	5
Cesspools abolished	1	6
Cesspools provided	2	3
Privies abolished	1	24

Waste Pipes.

Bath, lavatory, slopstone, and rainwater pipes disconnected over gullies

Do. do. do. wastepipes trapped	2	20
Do. do. do. wastepipes trapped	8	13
New slopstone wastepipes fixed	46	133
New rainwater pipes fixed	3	5
Rainwater pipes and roof gutters repaired	48	103

			1908.	1909.
Miscellaneous.			—	—
Houses cleansed and limewashed	..	..	14	19
Floors re-laid with flags	..	..	38	59
Floors re-laid with concrete	..	..	67	112
Back yards repaired	..	..	80	205
Back yards flagged or concreted	..	..	80	142
Back passages cleansed	..	..	6	20
Accumulations removed	..	..	427	331
Animals removed from improper situations	..	..	36	23
Roofs repaired	..	..	27	48
Rooms ventilated	..	..	297	373
Chimneys raised to abate smoke nuisance	..	..	2	5
Premises closed	..	..	—	—
Yards cleansed	..	..	39	67
Watercourse cleansed	..	..	3	2
Gable end of house cemented	..	..	—	—
Overcrowding ceased	..	..	—	—
Number of brackets provided for trade refuse bags.			148	—
Number of manholes reported to Cleansing Superintendent	..	..	39	25
Back Streets requiring forming reported	..	..	16	60
Erections in Yards, &c., reported	..	..	6	13
Letters	..	..	2,491	2,178
Infectious Diseases.				
Inquiries into cases of Infectious Disease (see Visits and inspections)	..	..	—	—
Houses disinfected after cases of Infectious Diseases	..	..	1,514	1,250
Houses disinfected after cases of consumption	..	..	35	56
Other premises disinfected	..	..	88	125
Isolation notices served upon householders	..	..	1,734	1,380
Isolation notices served upon School Managers	..	..	1,216	1,071
Other notices to School Managers with regard to Infectious Disease	..	..	1,350	1,050
Other notices to Householders with regard to Infectious Disease	..	..	1,350	1,050
Notices to Free Library with regard to Infectious Disease	..	..	1,454	1,260

Owing to complaints made by visitors, a systematic investigation of the town was commenced in 1902 in regard to the matter of ash receptacles. It was found that many houses were without suitable provision in this respect, and the Health Committee adopted a strong galvanised iron ash-bin with cover as the approved form to be provided in the case of old houses. From the fact of the liability to loss or damage of movable ash-receptacles, it is evident that constant attention by the inspectors will be necessary to prevent the condition of affairs being as bad as before the systematic inspections were started. The following is a summary of the work done in this direction :—

Details of work done in regard to ASH RECEPTACLES from 1st January to 31st December, 1909 :—

Total number of visits made	...	...	...	1,605
Satisfactory ash receptacles		...	...	433
Unsatisfactory ash receptacles		...	...	374
Re-inspections of houses under notice	...	...	...	798

Preliminary. Council

Total number	(a) To abolish ashpits	...	—	—
of notices	(b) To repair modified ashpits...		1	2
served	(c) To provide galvanised ashbins		298	96
Total number of modified ashpits repaired	...	...	—	19
Total number of ashpits abolished	...	...	—	16
Total number of galvanised ashbins provided	...	...	—	283
Total number of informations laid	...	...	—	164

DISINFECTING DEPARTMENT.

Articles removed from 532 Houses to Sanatorium for disinfection:—

Sheets, quilts, blankets, etc.	..	..	3,961
Articles of clothing	..	..	15,374
Pillows and bolsters	..	..	2,179
Beds	..	..	805
Mattresses	..	..	543
Carpets	..	..	1,180
Rugs and mats	..	..	847
Curtains	..	..	1,875
Cushions	..	..	587
Table cloths	..	..	468
Books	..	..	239
Miscellaneous articles	..	..	4,705
Articles from Sanatorium	..	..	5,959
<hr/>			
Total	..	..	38,722

**BLACKPOOL METEOROLOGICAL
OBSERVATORY.**



REPORT

AND

RESULTS OF OBSERVATIONS

FOR THE YEAR 1909.

PART IV.

BLACKPOOL METEOROLOGICAL OBSERVATORY.

The new Blackpool Observatory, erected in 1903, is situated in an open field close by a bridge crossing the railway behind the New Road Cemetery. The site is about half-a-mile from the Sanatorium site, and is about 70 feet above mean sea level. The Observatory building is of brick relieved by stone-work, and lighted by windows on the north and south sides. The building is placed four-square to the points of the compass, the doorway looking east. It is twelve feet square, nine feet high, and the floor is about two feet higher than the adjoining ground, requiring three steps at the doorway. The roof is flat and formed of concrete, supported on iron girders, and access to the roof is obtained by a flight of steps in the interior of the building, leading up through a trap door. The roof is protected by a parapet three feet high.

From the centre of the roof projects to a height of 57 feet from the ground a vertical pole of cast-iron tubing, stayed by wire guy-ropes anchored to the ground. This

pole carries the "combined" Anemometer and Anemoscope head and wind vane. The wind vane has a copper mouth-piece and aluminium wings, and measures three feet from end to end. From the head, one-inch tubes pass down alongside the anemometer pole, and through holes in the concrete roof to the Dines' and Baxendell's recording instruments placed on the floor of the Observatory.

On the roof of the Observatory is placed also a wooden stand bearing the Campbell-Stokes Sunshine-recorder. This is placed some 12 feet above the roof, or 25 feet above the ground level. In the Observatory room is placed the Fortin barometer. The Observatory contains also a telephonic installation, so that messages in regard to the weather may be communicated without delay.

The grass enclosure is about 65 feet to the south-east of the Observatory and 67 feet above mean sea-level and is 24 feet square. It contains in the centre a 5in. rain-gauge, with M.O. pattern rim. To the west of this is fixed one of Halliwell's recording rain-gauges. The Stevenson screen with its instruments occupies the centre of the north side of the enclosure, and on the centre of the south side is fixed the 4-feet earth thermometer. East of this, two solar radiation thermometers are placed four feet above the ground, one a bright bulb *in vacuo* and the other a black bulb *in vacuo*.

Near the south-east corner of the enclosure a minimum recording thermometer with link bulb is supported close to the grass, and gives the lowest temperature during the 24 hours.

INSTRUMENTS.

The equipment of the Department consists of :—

In or on the new Observatory building—

- (i) A Standard Fortin Barometer.
- (ii) A Campbell-Stokes Sunshine Recorder.
- (iii) A Wind Vane and a Patent Pressure Tube Anemometer.
- (iv) A Baxendell's Recording Anemoscope.
- (v) A Recording Barograph.

IN THE GRASS ENCLOSURE —

- (vi) A Stevenson Screen, containing wet and dry bulb and maximum and minimum thermometers.
- (vii) An Earth Thermometer at a depth of four feet.
- (viii) An Earth Thermometer at a depth of one foot.
- (ix) A Rain Gauge, 5in. M.O. pattern rim.
- (x) One solar radiation maximum thermometer, bright bulb
in vacuo.
- (xi) One solar radiation maximum thermometer, black bulb
in vacuo.
- (xii) One terrestrial radiation (or minimum on grass) thermometer.
- (xiii) One Halliwell's Patent Recording Float Pattern Rain-gauge.

RETURNS AND REPORTS, &c.

The Blackpool Observatory is recognised by the Meteorological Office and the Royal Meteorological Society

as a Second Order Station. Observations are taken at 9 a.m., 6 p.m., and 9 p.m. daily, and readings recorded of all the chief instruments. A cipher telegram is sent at 6 p.m. each day to the Meteorological Office, which gives the thermometer and barometer readings, the amount of sunshine, direction of wind, and the kind of weather during the day. This information is communicated to the press, and appears in the London daily papers next morning. In addition a post card is despatched every night, giving the 9 p.m. readings, and the records are published on page 4 of the "Daily Weather Report" issued the following morning from the Government Office. The "means" for the week are prepared from these postcards by the Meteorological Office, and published in the Weekly Weather Report. A monthly summary is also prepared for the Meteorological Society, but sent direct to the Government Office, whose officials abstract the information required for the "Monthly Weather Report," and afterwards forward the Summary to the Royal Meteorological Society. Returns are also sent to the British Rainfall Organisation.

As it is impossible for the observer to get down to the Post Office in time after the 9 p.m. reading, I have arranged for the officials at the Conservative Club, in Victoria Street, to receive the message by telephone, and fill up and post the daily postcard. I have to acknowledge my indebtedness for this privilege.

During 1909, a great deal was done to supply prompt information as to the Blackpool weather to the papers in different parts of the country. Telegrams recording the state of the weather were sent each forenoon throughout

the year to the Exchange Telegraph Company, London, "Lancashire Daily Post," "Bolton Daily Chronicle," "Bolton Evening News," "Huddersfield Examiner," "Liverpool Echo," "Manchester Evening News," and an evening telegram was also sent to the "Liverpool Daily Post and Mercury," "Liverpool Courier," "Manchester Courier," "Yorkshire Daily Observer," "London Daily Chronicle," and the Weather Bureau, London. During the summer months morning or evening telegrams were sent to 32 daily papers.

There can be no doubt that the increased publicity given to our weather records has been of material advantage to Blackpool.

As in previous years the observations have been taken by Mr. Harry Smith, and I have much pleasure in acknowledging the cheerfulness and faithfulness with which he has carried out this responsible work, which has been more exacting than ever since the commencement of the Second Order observations, which involve much extra work.

Inspector Cookson has been trained to act as deputy-observer when necessary, and has proved a very efficient substitute when Mr. Smith was unable to take the readings. The Chief Clerk, Mr. Berry, has also given important help in the preparation of the reports.

The Halliwell rain-gauge and the clock of the Barograph were cleaned and repaired during the year.

The records of observations of temperature, sunshine, rainfall, &c., taken at the new Observatory are complete for the five years—1904-1908—and tables of averages have

been compiled for these years. The results for 1909 in the tables appended are compared with these averages.

METEOROLOGICAL REPORT, 1909.

YEAR.—The chief meteorological features of the year were the coldness of the weather, especially during the summer solstice, the peculiar distribution of bright sunshine and rainfall, more particularly during the summer season, and lastly, the wet and March-like July.

Bright sunshine was above the average in January and February, April and May, and November and December, and below the normal in the remaining six months. Although June and August may be considered dull months, with 28 hours and 54 hours' sunshine respectively below the average, they were drier than usual, the rainfall being actually less than the local average, and also the Meteorological Office average for the thirty-five years—1871-1905.

Genial weather prevailed during April and May, and again from the 2nd to the 14th of August.

The mean shade temperature was one degree below the average; April, May, and October being the only months above the normal temperature.

The increase in the rainfall is accounted for by the exceptionally heavy falls of rain in July, October, and December.

BRIGHT SUNSHINE.—Bright sunshine was 32.3 hours above the average for the years 1904-1908. The distribution of sunshine, and the percentage of the possible duration in each month will be seen in the following Tables :—

DISTRIBUTION OF BRIGHT SUNSHINE, &C.

MONTHS.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Hours	55.2	93.2	109.9	217.4	287.9	196.4	172.3	172.3	119.9	93.3	89.2	47.3
Difference from local average 5 years, 1904 to 1908	+ 6.7	+ 12.0	- 31.2	+ 39.6	+ 109.1	- 28.3	- 53.8	- 14.4	- 32.4	- 16.3	+ 33.4	+ 7.9
Difference from Me- teorological Office average 25 years 1881 to 1905	+ 17	+ 30	+ 2	+ 63	+ 85	- 3	- 16	+ 9	- 7	+ 1	+ 42	+ 20
Percentage of possible duration.....	23%	35%	30%	52%	59%	39%	34%	38%	32%	29%	35%	21%

DAILY AMOUNT OF BRIGHT SUNSHINE AND RAINFALL, 1909.

DAY.	Jan.		Feb.		March		April		May.		June.		July.		August.		Sept.		Oct.		Nov.		Dec.		
	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	Sunshine	Rainfall	DAY		
1	—	.01	6.5	—	2.5	—	9.9	—	13.9	—	9.0	—	13.2	—	1.4	.28	1.7	.14	0.4	.04	0.4	.01	—	.48	
2	—	.01	—	.09	0.3	.27	6.0	—	13.8	—	10.0	—	11.2	—	2.9	—	9.3	.05	3.6	.06	—	.02	—	1.24	
3	—	.02	—	.27	7.4	—	—	—	10.1	—	7.4	—	0.5	—	6.9	—	0.3	.11	—	.24	—	—	—	.14	
4	—	—	—	.08	7.6	—	0.4	—	9.5	—	8.3	.15	9.6	.07	2.9	—	0.1	.03	2.2	.06	0.7	—	1.5	.07	
5	2.4	.06	7.1	—	7.0	.08	10.8	—	14.0	—	—	.12	1.3	.27	10.6	—	8.6	.27	3.0	.12	—	.08	5.8	.02	
6	—	.01	6.4	—	—	.09	10.6	—	14.0	—	8.7	—	2.8	.02	13.7	—	7.3	.16	8.7	—	0.2	—	—	—	
7	6.1	.11	0.5	—	1.9	—	11.0	—	13.5	—	15.3	—	5.1	.01	13.2	—	4.2	—	0.3	.05	8.0	—	.01	—	
8	—	—	—	.04	4.3	—	9.7	—	14.3	—	2.3	—	14.7	.46	7.5	—	9.3	.02	1.9	.02	7.6	.24	—	5.6	
9	—	.17	0.4	.28	—	—	11.3	—	13.4	—	5.6	—	0.1	.02	10.0	—	6.8	.02	5.6	.14	5.2	.01	—	.40	
10	—	.12	—	.05	—	—	11.6	—	10.2	—	5.2	.02	13.2	—	6.5	—	6.9	—	2.0	.14	—	.03	—	.70	
11	5.6	.03	5.1	—	0.5	—	5.4	—	11.0	—	6.2	.05	1.5	—	5.3	.02	0.6	—	0.6	.27	—	.03	—	.03	
12	—	.06	7.2	—	7.2	—	6.2	—	4.0	—	8.7	—	14.1	.06	8.8	.02	0.6	—	3.0	.38	—	.01	—	—	
13	—	.28	—	.01	7.6	—	10.1	—	11.4	—	.02	14.0	—	2.9	—	6.6	.01	1.4	2.5	.10	7.7	—	—	—	
14	—	.22	5.6	—	8.0	—	11.6	—	13.2	—	12.5	—	3.2	.95	8.7	.30	5.0	—	5.4	.20	1.9	—	2.1	—	
15	3.9	.03	6.9	—	9.5	—	5.8	—	18.8	—	.01	11.3	—	—	1.6	.28	1.8	.01	—	.01	7.0	—	3.9	—	
16	0.5	.03	0.1	—	7.4	—	0.7	—	12.0	—	.13	14.8	—	11.0	6.7	.32	6.2	—	2.4	.21	6.9	—	—	.05	
17	—	.13	3.8	—	0.4	.07	10.4	—	12.6	—	4.1	.07	6.5	.04	2.7	.02	5.1	—	0.5	.10	7.3	—	—	.01	
18	—	—	—	—	4.4	.02	4.4	—	9.4	—	2.0	.01	11.3	—	5.3	.11	3.7	.01	5.1	.80	3.1	—	0.3	.14	
19	5.8	—	8.0	—	4.4	.11	12.3	—	11.0	—	4.0	.05	2.0	.07	0.5	.69	10.9	—	1.2	.18	5.7	—	.16	.09	
20	6.7	—	8.0	—	2.0	—	—	—	—	—	1.8	.43	1.1	.04	7.8	.21	4.4	—	4.6	.16	1.1	—	—	.74	
21	1.0	.01	8.4	—	6.1	—	4.8	—	8.0	—	—	—	—	—	0.2	8.6	.21	7.0	—	.21	7.2	—	—	.28	
22	—	—	7.0	—	4.7	—	3.2	—	4.4	.02	—	.50	1.5	.02	8.6	.21	7.0	.57	—	1.15	6.0	.01	—	.18	
23	—	—	5.4	.01	3.4	.17	12.3	—	6.3	.02	0.4	.18	8.2	.43	—	.10	3.0	.01	1.2	.40	1.8	.02	6.4	.13	
24	2.5	—	4.2	—	—	.34	2.0	—	10.0	.87	1.7	.39	0.5	.62	1.3	.03	2.2	.01	4.7	.02	0.2	.08	5.5	.26	
25	5.1	—	—	—	1.0	.01	10.0	—	0.7	.20	1.2	—	4.2	.10	1.7	—	4.5	—	4.7	.02	—	.08	0.2	.02	
26	2.4	—	—	—	9.7	—	1.0	—	2.2	.21	4.7	.04	8.1	—	5.3	.06	—	—	—	—	1.1	.08	0.2	.02	
27	2.5	—	0.1	.10	6.4	.13	5.6	—	7.7	.10	2.4	.06	3.0	.10	7.0	.02	—	.83	7.1	—	1.4	.30	—	.36	
28	—	.25	0.2	—	—	.70	5.7	—	7.5	.12	0.9	.07	12.1	.07	4.6	.02	—	.67	0.7	—	.14	0.9	.30	.28	
29	4.7	—	—	—	—	.29	11.8	—	7.8	—	6.9	—	1.0	.35	—	.30	0.7	—	8.7	—	2.4	—	6.0	—	
30	6.0	—	—	—	—	.03	11.4	—	10.4	.31	11.9	—	5.5	.84	2.9	.01	2.0	.12	7.7	—	0.1	.28	—	.13	
31	—	.09	—	—	0.6	.21	—	—	0.5	.14	—	—	1.5	.16	11.3	—	—	—	8.3	—	—	—	5.0	—	
Total Sunshine hours	55.2	93.2	109.9	217.4	287.9	196.4	172.3	119.9	172.3	12.97	89.2	47.3	5.94	1.23	93.3	4.92	89.2	47.3	5.94	1.23	93.3	4.92	89.2	47.3	5.94
Total Rainfall inches	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	

BRIGHT SUNSHINE.—Average daily duration 1909, 4.5 hours.

BRIGHT SUNSHINE IN BLACKPOOL DURING 20 YEARS,
1890—1909.

YEAR.	HOURS.	YEAR.	HOURS.	YEAR.	HOURS.	YEAR	HOURS
1890	1,160.8	1895	1,470.3	1900	1,406.1	1905	1,757.9
1891	880.2	1896	1,367.2	1901	1,687.4	1906	1,679.1
1892	1,384.6	1897	1,485.6	1902	1,522.8	1907	1,518.8
1893	1,497.3	1898	1,386.2	1903	1,474.2	1908	1,615.1
1894	1,310.2	1899	1,481.7	1904	1,539.1	1909	1,654.3

There were 294 days (or 80 per cent.) during the year on which bright sunshine was recorded, and 71 sunless days. The sun shone on every day in May, whilst April and July had each one sunless day, June two, and August and September each three sunless days.

The brightest months were April, with 217.4 hours, and May, with 287.9 hours. The average number of hours was exceeded in January, February, April, May, November, and December.

The brightest days of the year were the 26th March, with 9.7 hours; 20th and 23rd April, each with 12.3 hours; 8th May, with 14.3 hours; 7th June, with 15.3 hours; 8th July, with 14.7 hours; 6th August, with 13.7 hours; 20th August, with 10.9 hours.

RAINFALL.—Rain to the amount of one-hundredth of an inch or more fell on 198 days, as against 194 days in 1908. The total rainfall amounted to 35.46 inches, or 3.78

inches above the average for the years 1904 to 1908, and 1.7 inches for the 35 years 1871-1905.

The months of greatest rainfall were July, with 4.81 inches ; August, with 2.97 inches ; September, with 3.00 inches ; October, with 4.92 inches ; December, with 5.94 inches. The months of least rainfall were January, with 1.82 inches ; February, with 0.94 inch, and November, with 1.23 inches.

GALES.—Gales occurred on 23 days during the year—precisely the same number as last year. On 12 days a velocity of 50 miles an hour or more was reached during the maximum gusts. In gusts the highest velocity was 73 miles per hour on the 3rd December.

SNOW.—Snow fell on 12 days, and hail on 18 days. Wintry weather was experienced on the 2nd and 6th March, and from the 19th to the 22nd of December. A snowstorm of exceptional severity occurred on the 19th December, from 7 a.m. to 3 p.m. Hail fell on the 24th of June.

FOG.—We were free from fog except on three days in January, and one day each in February and September. Sea fogs were experienced in the evenings of the 9th and 11th of August.

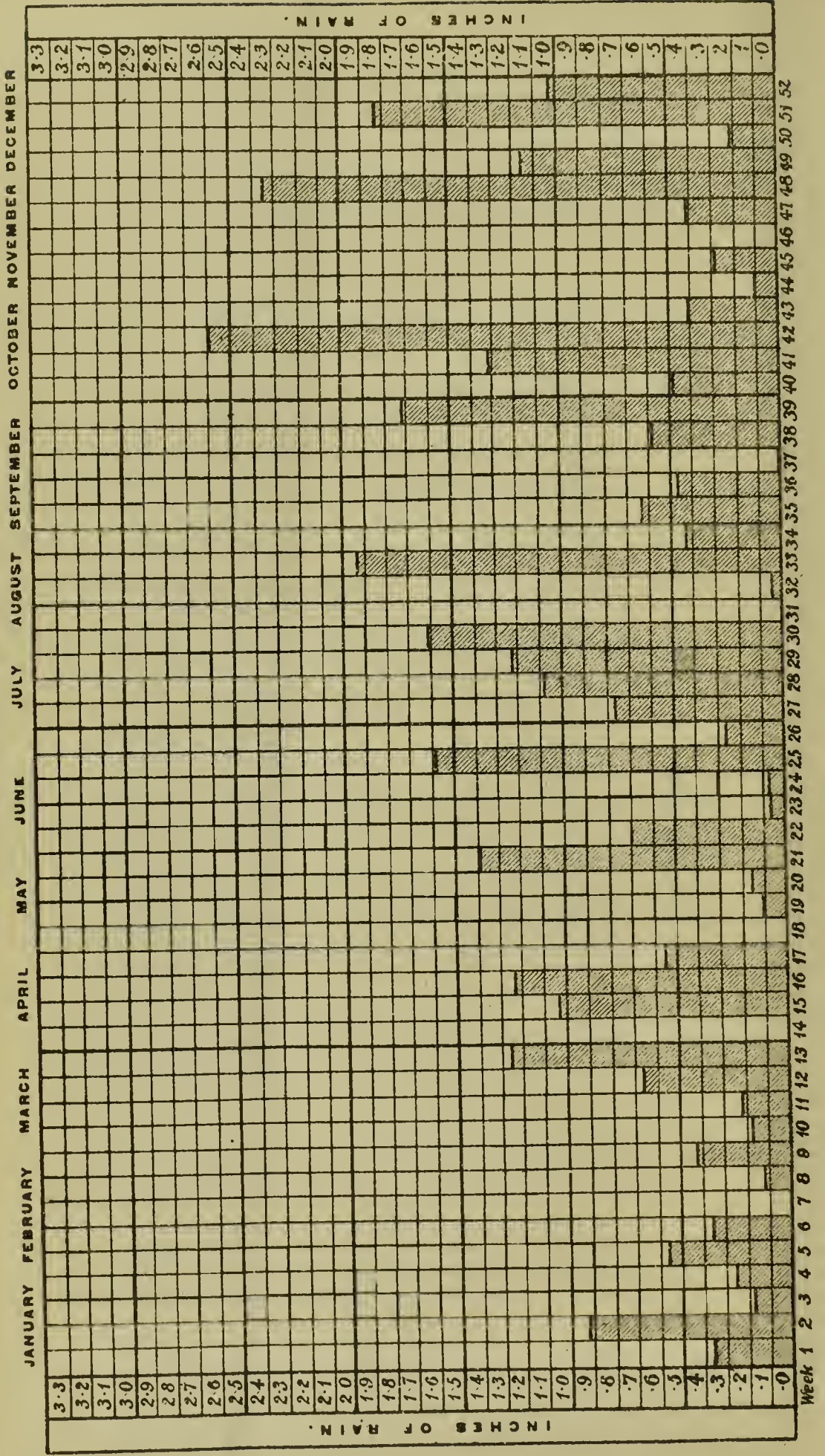
THUNDERSTORMS.—Slight thunderstorms occurred on ten days. Thunder was heard, but lightning not seen on three days ; lightning was seen but thunder not heard on two days.

As regards the Winter months, I would draw attention to the comparison figures for three inland stations in Lancashire.

Climatic Conditions in Blackpool during the Winter Months of 1909 as compared
with three Inland Stations in Lancashire:—

Meteorological Station.	JANUARY.			FEBRUARY.			MARCH.		
	Mean Shade Temp.	Hours of Bright Sunshine.	Rainfall in inches.	Mean Shade Temp.	Hours of Bright Sunshine.	Rainfall in inches.	Mean Shade Temp.	Hours of Bright Sunshine.	Rainfall in inches.
Blackpool	38.8	55.2	1.82	37.9	93.2	0.94	38.6	109.9	2.70
Bolton	37.0	29.0	2.28	37.5	60.8	1.85	38.1	52.7	3.60
{ Manchester (Prestwich).....	37.4	26	2.16	37.4	58	1.69	38.1	50	3.34
{ Do. (Whitworth Park).....	38.4	26	1.56	38.6	53	1.11	39.3	40	2.60
Stonyhurst	37.8	38	2.68	37.3	78	4.20	38.0	71	2.66
Meteorological Station.	OCTOBER.			NOVEMBER.			DECEMBER.		
	Mean Shade Temp.	Hours of Bright Sunshine.	Rainfall in inches.	Mean Shade Temp.	Hours of Bright Sunshine.	Rainfall in inches.	Mean Shade Temp.	Hours of Bright Sunshine.	Rainfall in inches.
Blackpool	50.6	93.3	4.92	40.8	89.2	1.23	38.9	47.3	5.94
Bolton	49.3	79.2	6.59	40.9	54.7	1.87	37.7	18.0	8.33
{ Manchester (Prestwich).....	50.2	82	5.60	40.8	46	1.33	37.8	10	7.25
{ Do. (Whitworth Park).....	50.9	78	5.46	41.5	18	1.03	39.2	9	6.48
Stonyhurst	49.1	88	4.71	40.8	74	2.69	37.9	30	7.25

CHART IV. (Rainfall in Inches--weekly--1909).



EXTREMES FOR THE YEAR 1909.

BAROMETER.—The highest observed reading of the barometer at Blackpool (reduced to 32°F., and mean sea level), was 30.673 inches on the 4th January, at 9 a.m. The lowest reading was 28.476 inches on the 2nd December, at 9 p.m. The difference between the barometric maximum and minimum was 2.197 inches. The greatest monthly range, 2.047 inches, occurred in December, and the smallest range, 0.842 inch, in August.

TEMPERATURE.—The highest temperature recorded in the Stevenson Screen by the maximum thermometer was 73.3 degrees, on the 21st May ; the lowest recorded by the minimum thermometer in screen was 13.8 degrees, on the 21st December.

The highest temperature recorded by the black-bulb solar radiation thermometer was 126.2 degrees, on the 4th July. The lowest temperature recorded by the minimum on grass thermometer was 12.8 degrees on the 8th December.

SUNSHINE.—The greatest duration of sunshine upon one day was 15.3 hours on the 7th June.

RAINFALL.—The heaviest daily falls of rain were 1.24 inches on the 2nd December, and 1.15 inches on the 23rd October.

The greatest intensity of rainfall shown on the automatic record charts occurred on the 25th May, when half-an-inch of rain fell in one and a half hours. The longest

duration of rainfall recorded was from 2-30 p.m. on the the 27th September, to 6 p.m. on the 28th September, *i.e.*, 27½ hours' continuous rainfall.

MAIN FEATURES OF THE MONTHS, 1909.

JANUARY.—During the first and second weeks climatic conditions were changeable, falls of rain frequent, but of slight intensity. The second week was especially rough, gales and hail showers occurring on six days. From the 19th, the weather was brighter and more seasonable.

Mean shade temperature was above the average during the first period of the month, but below the normal from the 19th to the end of the month. The highest temperature in the shade, 50.3 degrees, was recorded on the 18th, and the lowest temperature upon the grass was 19.4 degrees on the 24th. Frost was registered in the shade on 10 days, and upon the grass on 15 days.

Bright sunshine was 6.7 hours above the average.

Rainfall was deficient, except during the second week of the month. Rain fell on 19 days.

Barometric pressure was high and fairly steady, except from the 11th to the 15th, when it reached its minimum. The prevailing winds were from South-South-East, and South-West. Gales occurred on the 7th, 11th, 12th, 13th, 14th, 15th, 16th, and 17th. Hail fell on the 11th, 12th, 14th, 15th, and 16th. A slight thunderstorm was experienced on the 16th. Fogs, but of no great density, occurred on the 21st, 22nd, and 27th.

FEBRUARY.—A dry, cold, but sunny month.

Mean shade temperature, except in the first week, was below the average, due to the influence of Easterly winds which prevailed during the month. The highest shade temperature recorded was 50.8 degrees on the 22nd, and the lowest temperature recorded upon the grass was 17.3 degrees on the 25th. Frost was registered in the shade on 11 days, and upon the grass on 22 days.

Bright sunshine was plentiful, and exceeded the average by 12 hours.

The rainfall was 0.94 inch, or 1.45 inches below the average, and is the smallest amount registered in February since 1895. Rain fell on 10 days.

Atmospheric pressure was high. A strong North-Westerly gale occurred on the 5th. The general direction of the wind was South-East.

Snow fell on the 9th and the 28th. A fog of short duration was experienced on the 17th.

MARCH.—Wintry weather was experienced during the early part of the month, and generally, climatic conditions were of an inclement character throughout the month.

Mean shade temperature was 2.4 degrees below average, but 0.6 degree above Stonyhurst. The highest shade temperature recorded was 54.0 degrees on the 29th, and the lowest temperature upon the grass was 14.1 degrees on the 4th. Frost was registered in the shade on 10 days, and upon the grass on 22 days.

Bright sunshine was deficient by 31 hours.

The rainfall was above the average, especially during the last week of the month. The greatest fall in one day, 0.70 inch, occurred on the 28th.

Barometric pressure was low. The winds were chiefly from the North-East. Snow fell on the 2nd, 6th, and 17th.

APRIL.—A bright month, dry to the 12th, but afterwards showery, interspersed by intervals of brilliant sunshine, characteristic of the month.

Mean shade temperature was two degrees above average. The highest temperature in the shade, 62.1 degrees, was recorded on the 10th, and the lowest temperature upon the grass, 22.5 degrees, occurred on the 2nd. Frost was registered in the shade on two days, and upon the grass on 10 days.

Rain fell on 15 days, and amounted to 2.86 inches, or 0.78 inch above the average.

Bright sunshine was abundant, especially during the week ended 10th April, when 72 per cent. of the possible duration of bright sunshine was recorded. There was only one sunless day.

Barometric pressure was high to the 10th, but afterwards below

the average. South-Westerly winds prevailed during the month. Slight thunderstorms occurred on the 26th and 28th, the latter being accompanied with hail showers. Lightning was seen on the 23rd. Hail fell on the 28th and 30th.

MAY.—The weather was dry, with brilliant sunshine. Bright sunshine exceeded all previous records, and amounted to 287.9 hours, equivalent to 59 per cent. of the possible duration of sunshine. In the week ended the 8th, 85 per cent. of the possible duration was recorded. There were no sunless days.

Mean shade temperature was above the average. The highest temperature in the shade was 73.3 degrees on the 21st, and the lowest temperature upon the grass was 21.2 degrees on the 2nd. Frost was recorded in the shade on two days, and upon the grass on 10 days.

Rain fell on 13 days and amounted to 2.13 inches, but the major portion, 1.83 inches, fell on 5 days.

The prevailing winds were from the Easterly and Westerly points of the compass. Atmospheric pressure was high and steady to the 26th, when the barometric minimum was reached. A slight thunderstorm, accompanied with hail showers, occurred on the 26th.

JUNE.—A cool and unseasonable month. The weather was fairly bright to the 17th, but afterwards very dull and unsettled.

Mean shade temperature was three degrees less than the average, and frost was recorded upon the grass on 4 days.

Bright sunshine was below the average, especially during the week ended the 26th June. The brightest periods of the month were between the 1st and 4th, and the 12th and 17th. The brightest days were the 7th and 13th, with 15.3 and 15.1 hours' sunshine respectively. There were 2 sunless days.

The rainfall amounted to 2.14 inches, or 0.34 inch below average; 1.80 inches of the rainfall fell between the 18th and 28th.

The winds were chiefly from the North-West. Barometric pressure was high to the 18th, but low and unsteady between the 18th and the 26th. Thunderstorms occurred on the 23rd and 24th; the latter was accompanied by hail showers. Thunder was heard on the 22nd and 28th.

JULY.—This month, like the preceding one, was cool and unseasonable, especially during the latter part of the month, when the climatic conditions were more characteristic of March than July.

Mean shade temperature was $1\frac{1}{2}$ degrees below the average, but 1.1 degrees above Stonyhurst.

Bright sunshine was 53 hours below the average. There was only one sunless day.

Rainfall was heavy and amounted to 4.81 inches, or 2.44 inches in excess of the average. The major portion of the rainfall, 3.65 inches, fell on 6 days.

The general direction of the wind was West. Atmospheric pressure was low. A thunderstorm occurred on the 23rd, and gales were recorded on the 24th and 25th.

AUGUST.—With the exception of the 1st, the weather was genial to the 15th, but from this date to the end of the month was dull and unsettled.

Mean shade temperature was 0.6 degree below average.

Bright sunshine was 14 hours less than the average, due to the excessive amount of cloud in the latter part of the month. There were 3 sunless days. The brightest day was the 6th, with 13.7 hours' sunshine.

Rain fell on 17 days, and amounted to 2.97 inches, or 0.39 inch below the average.

Atmospheric pressure was high and steady during the first half of the month, but low during the remainder of the month. The winds were mainly from the West. Gales occurred on the 30th and 31st. A thunderstorm was experienced on the morning of the 16th. Sea fogs occurred on the evenings of the 9th and 11th.

SEPTEMBER.—A cool month, due to the unusual prevalence of Easterly winds. The weather was changeable during the first week, but with the exception of the 23rd, 27th, and 28th, when heavy rains fell, the remaining period of the month was fair.

Mean shade temperature was 2.4 degrees below the average. Frost was recorded upon the grass on 4 days, and the lowest temperature registered was 26.9 degrees on the 14th.

Bright sunshine, although equal to the amount recorded in the corresponding period of 1908, was 32 hours less than the average. There were 3 sunless days.

Rainfall amounted to three inches, or 0.57 inch above the average; 2.34 inches of the total rainfall fell on 4 days.

Atmospheric pressure was steady during the month. The prevailing winds were from the East and West. Gales occurred on the 6th and 7th. A thunderstorm was experienced on the 23rd. Hail fell on the 1st.

OCTOBER.—The weather during the first three weeks was mild, but dull and unsettled, especially between the 19th and the 24th, when rainy and squally weather was experienced. The last week of the month was bright and frosty.

Mean shade temperature was 0.7 degree above the average. The highest temperature in the shade was 64.1 degrees on the 10th, and the lowest temperature upon the grass was 12.9 degrees on the 31st. Frost was registered in the shade on 2 days, and upon the grass on 7 days.

Bright sunshine was 16 hours below the average. There were 5 sunless days.

Rainfall was heavy, and amounted to 4.92 inches, or 1.51 inches in excess of the average. The greatest fall in one day was 1.15 inches on the 23rd. Rain fell on 22 days.

Barometric pressure was low during the greater part of the month. Gales occurred on the 5th, 14th, 15th, 21st, and 24th. Hail fell on the 13th, 21st, 24th, and 25th. Lightning was seen on the 29th. The general direction of the wind was South-West.

NOVEMBER.—A cold dry month, with an abundance of bright sunshine.

Mean shade temperature was 2.9 degrees below the average. The highest shade temperature was 52.7 degrees on the 3rd, and the lowest temperature upon the grass was 17.4 degrees on the 23rd. Frost was recorded in the shade on 15 days, and upon the grass on 19 days.

Bright sunshine amounted to 89.2 hours, or 36 per cent. of the possible duration, which exceeds all previous records.

Rainfall amounted to 1.23 inches, or 1.93 inches below the average, and

is the lowest figure recorded since the commencement of observations in 1885. The greater portion of the rainfall fell during the last 5 days of the month. No rain fell between the 12th and 23rd.

Atmospheric pressure was high and steady except towards the end of the month. The winds were chiefly from North-North-East and South-West. Gales occurred on the 12th and 13th, and hail fell on the 27th.

DECEMBER.—The weather was very unsettled and variable, with frequent falls of rain. Wintry weather was experienced between the 18th and 24th.

Mean shade temperature was one degree below the average. The highest temperature in the shade was 51.7 degrees on the 28th, and the lowest temperature on the grass was 12.8 degrees on the 8th. Frost was recorded in the shade on 9 days, and upon the grass on 16 days.

Rainfall was abnormal, exceeding the average by 3.45 inches. The greatest falls in one day were 1.24 inches on the 2nd, 0.70 inch on the 10th, and 0.74 inch on the 21st.

Bright sunshine amounted to 47.3 hours, or 7.9 hours in excess of the average.

Atmospheric pressure fluctuated considerably, the minimum, 28.428 inches being recorded on the night of the 2nd, and was followed by a severe gale during the early morning of the 3rd.

Hail or sleet fell on the 3rd, 5th, 18th, 22nd, and 24th. A thunder-storm, accompanied with hail, occurred on the 3rd at 5-30 p.m. The prevailing wind was South-East.

BAROMETRIC PRESSURE* corrected to 32° F.
and mean sea level.

1909.	Mean Pressure.	Difference from Average 5 years 1904-1908.	Highest.	Lowest.	Observed Monthly Range.
January	30.091	+ .024	30.673	28.929	1.744
February	30.136	+ .250	30.588	29.383	1.205
March	29.508	— .405	30.107	29.016	1.091
April	29.918	+ .002	30.511	29.399	1.112
May	30.080	+ .137	30.354	29.315	1.039
June	29.983	— .020	30.381	29.292	1.089
July	29.874	— .142	30.260	29.257	1.003
August	29.978	+ .045	30.321	29.479	0.842
September	30.041	— .009	30.387	29.527	0.860
October	29.712	— .209	30.254	29.145	1.109
November	30.010	+ .109	30.405	29.127	1.278
December	29.620	— .287	30.523	28.476	2.047
Means	29.913	— .042	Highest 30.673	Lowest 28.476	1.201

* From observations at 9 a.m. and 9 p.m. daily.

TEMPERATURE—Stevenson Screen Results.
(IN DEGREES FAHRENHEIT).

1909.	Mean Maxi- mum	Mean Mini- mum	Mean Temp. *	Differ- ence from Average 1904-08.	Mean Daily Range	Absolute extremes.			
						High- est	Date	Lowest	Date
January	42.8	34.7	38.8	—0.5	8.1	50.3	18th	23.3	28th
February	43.0	32.8	37.9	—0.8	10.2	50.8	22nd	22.4	25th
March	43.9	33.3	38.6	—2.4	10.6	54.0	29th	16.9	4th
April	53.8	39.2	46.5	+ 2.0	14.6	62.1	10th	29.2	2nd
May	57.9	41.2	49.6	+ 0.8	16.7	73.3	21st	29.4	16th
June	59.5	45.9	52.7	—3.0	13.6	65.8	15th	34.8	7th
July	62.4	53.1	57.8	—1.5	9.3	69.9	2nd	39.6	1st
August	62.9	52.7	57.8	—0.6	10.2	71.9	15th	42.2	3rd
September	59.7	46.2	53.0	—2.4	13.5	64.9	24th	35.4	14th
October	56.0	45.1	50.6	+ 0.7	10.9	64.1	10th	25.6	31st
November	46.6	34.9	40.8	—2.9	11.7	52.7	3rd	26.4	8th
December	43.4	34.3	38.9	—1.0	9.1	51.7	28th	13.8	21st
Means	52.7	41.1	46.9	—1.0	11.6	High'st 73.3	May 21st	Lowest 13.8	Decr. 21st

* Mean of the daily indications (each for the 24 hours ending 9 p.m.)
of the maximum and minimum thermometers in the screen.

HUMIDITY.

1909	9 a.m. Readings.			Elastic Force of Aqueous Vapour.	Mean relative humidity.	Differ- ence from Average at 9 a.m. 5 years (1904-1908)
	Dry Bulb.	Wet Bulb.	Dew point.		9 a.m.	
January	38.8	37.5	35.7	.215	88.7	—3.0
February	38.1	36.6	34.5	.203	87.0	—3.4
March	39.3	37.7	35.3	.211	85.8	—0.2
April	49.0	45.2	41.2	.263	75.2	—6.0
May	53.1	48.8	44.6	.303	73.9	—9.0
June	55.7	51.8	48.1	.340	76.6	—4.3
July	58.4	55.7	53.2	.408	83.5	+ 2.0
August	59.4	56.9	54.6	.432	85.2	+ 2.4
September	55.6	52.8	50.0	.368	81.9	—1.3
October	51.8	49.6	47.3	.338	84.9	—2.7
November.....	42.0	40.9	39.5	.249	90.6	+ 0.4
December	38.8	37.9	36.6	.223	91.6	—0.3
Means	48.3	46.0	43.4	.296	83.7	—2.1

HUMIDITY.

1909	9 p.m. Readings			Elastic Force of Aqueous Vapour.	Mean relative humidity.	Differ- ence from average 5 years 1904-1908
	Dry Bulb	Wet Bulb	Dew Point		9 p.m.	
January	38.9	38.0	36.6	.221	91.4	—0.6
February	37.6	36.2	34.2	.200	87.8	—2.7
March	38.8	37.5	35.6	.213	88.2	—3.1
April	45.4	42.9	40.1	.252	82.1	—5.7
May	49.1	46.1	42.9	.282	79.6	—10.8
June	52.4	50.4	48.3	.341	86.9	—2.2
July	56.5	54.9	53.5	.412	89.8	+ 1.1
August	57.7	55.9	54.2	.424	88.3	—0.9
September	52.2	50.6	49.0	.350	88.8	—1.7
October	49.6	48.0	46.3	.327	88.5	—2.9
November.....	40.8	39.8	38.3	.240	88.9	—3.5
December	38.2	37.5	36.6	.222	93.6	+ 2.3
Means	46.4	44.8	43.0	.290	87.8	—2.6

TEMPERATURE EXTREMES, SOLAR AND TERRESTRIAL RADIATION.

1909.	Black Bulb in vacuo.		Bright Bulb in vacuo.		Minimum on grass.	
	Highest.	Date.	Highest.	Date.	Lowest	Date.
January	83.8	29th	59.1	12th	19.6	24th
February	89.7	22nd	66.0	5th	17.3	25th
March	99.1	27th	74.3	19th	14.1	4th
April	111.9	24th	78.5	21st	22.5	2nd
May	125.7	21st	91.8	21st	21.2	2nd
June	122.5	18th	85.1	15th	27.1	7th
July	126.2	4th	89.6	2nd	32.8	1st
August	123.4	13th	88.4	15th	35.6	26th
September	118.9	8th	82.7	10th	26.9	14th
October	107.2	6th	78.6	10th	12.9	31st
November.....	87.9	10th	62.0	10th	17.4	23rd
December	81.2	8th	57.0	15th	12.8	8th
Year	126.2	July 4th	91.8	May 21st	12.8	Decr. 8th

UNDERGROUND TEMPERATURES, AND SOLAR AND TERRESTRIAL RADIATION.

1909.	Mean Underground at 9 a.m.		Difference from Average 5 years. (1904-1908)	Mean Daily Max. Temp. in Sun.		Mean excess of Black Bulb in vacuo over Bright Bulb in vacuo.	Mean Daily Minimum on short Grass.
	1 foot.	4 feet.		Black Bulb in vacuo.	Bright Bulb in vacuo.		
January	39.0	43.8	+0.9	60.6	47.9	12.7	31.8
February	37.6	41.6	-0.3	71.5	52.5	19.0	28.8
March	38.4	40.9	-1.2	79.7	55.6	24.1	30.0
April	45.5	44.0	+0.6	100.8	69.6	31.2	35.0
May	50.7	47.9	-0.3	111.0	75.9	35.1	36.1
June	55.7	51.7	-1.2	111.6	77.7	33.9	41.4
July	58.5	54.4	-2.1	115.1	80.4	34.7	50.5
August	58.4	55.2	-2.2	110.8	79.1	31.7	49.2
September	55.2	54.8	-1.2	101.9	74.4	27.5	41.2
October	52.0	53.5	+0.2	87.8	66.3	21.5	40.3
November.....	42.7	48.1	-1.1	73.4	55.4	18.0	29.5
December	40.3	44.6	-1.1	58.6	47.4	11.2	29.7
Means	47.8	48.4	-0.8	90.2	65.2	25.0	37.0

DURATION OF BRIGHT SUNSHINE AND AMOUNT OF CLOUD.

1909.	Campbell-Stokes Recorder.					Cloud.	
	Total Bright Sunshine. Hours.	Difference from Average 5 years (1904-1908).	Most Sunshine in One Day.		Number of Sunless Days.	9 a.m.	9 p.m.
			Amount Hours.	Date.			
January	55.2	+ 6.7	6.7	20th	17	7.9	7.4
February	93.2	+ 12.0	8.4	21st	7	7.4	6.5
March	109.9	-- 31.2	9.7	26th	8	7.7	7.8
April	217.4	+ 39.6	12.3	20th 23rd	1	5.7	5.0
May	287.9	+ 109.1	14.3	8th	...	5.6	5.6
June	196.4	-- 28.3	15.3	7th	2	7.5	8.0
July	172.3	-- 53.8	14.7	8th	1	8.3	8.2
August	172.3	-- 14.4	13.7	6th	3	8.1	6.7
September	119.9	-- 32.4	10.9	20th	3	7.2	8.1
October	93.3	-- 16.3	8.7	6th 29th	5	7.6	7.7
November.....	89.2	+ 33.4	8.0	7th	7	6.6	6.0
December	47.3	+ 7.9	6.4	24th	17	8.8	7.8
Totals.....	1,654.3	+ 32.3	15.3	June 7th	71	7.6	7.1

RAINFALL.

1909.	Total Rainfall. *	Difference from Average 5 years (1904-1908).	Number of days with 0.01 in. or more.	Greatest fall in one day. †	
				Amount.	Date.
	Inches.	Inches.		Inches.	
January	1.82	—0.79	19	.28	14th
February .....	.94	—1.45	10	.28	9th
March	2.70	+0.21	17	.70	28th
April	2.86	+0.78	15	.42	24th
May	2.13	—0.29	13	.87	24th
June	2.14	—0.34	14	.50	22nd
July	4.81	+ 2.44	21	.95	15th
August	2.97	—0.39	17	.69	20th
September	3.00	+0.57	14	.83	27th
October	4.92	+1.51	22	1.15	23rd
November.....	1.23	—1.93	13	.30	27th
December	5.94	+ 3.45	23	1.24	2nd
Totals	35.46	+ 3.78	198	1.24	Deer. 2nd

* From 9 a.m. on the 1st, including each month the fall during the first nine hours of the succeeding month.

† 24 hours ending 9 a.m. next day.

FORCE AND MOVEMENT OF THE WIND

AS RECORDED BY THE DINES' RECORDING PRESSURE TUBE ANEMOMETER.

1909.	Mean Daily Move- ment.	Absol. Max. for one hour.	Date.	Rate in Max. Gust.	Date.	Gales occurred on these dates.
	Miles.	Miles.		Miles.		
January	302	43	14th and 16th	63	13th	7th, 11th, 12th, 13th, 14th, 15th, 16th, and 17th
February ...	261	35	5th	51	5th	5th
March	239	28	24th	43	24th	—
April	285	28	29th	46	29th	—
May	221	28	6th	40	5th and 6th	—
June	184	21	8th and 17th	34	24th	—
July	324	34	24th	51	24th	24th and 25th
August	225	32	31st	46	31st	30th and 31st
September .	165	32	7th	46	7th	6th and 7th
October	301	35	14th and 24th	56	14th	5th, 14th, 15th, 21st, and 24th
November...	232	39	12th	61	12th	12th and 13th
December ...	255	47	3rd	73	3rd	3rd
Means	250	Highest 47	Dec. 3rd	Highest 73	Dec. 3rd	Total 23

DIRECTION OF WIND AT BLACKPOOL DURING 1909.

OBSERVATIONS 4 TIMES DAILY, AT 9-0 A.M., 1-0 P.M., 6-0 P.M., AND 9-0 P.M.

1909	N	N.N.E.	N.E.	E.N.E.	E	E.S.E.	S.E.	S.S.E.	S	S.S.W.	S.W.	W.S.W.	W	W.N.W.	N.W.	N.N.W.	Calm.	No. of Observa- tions.
January ...	...	1	...	...	4	2	10	17	7	15	14	14	11	10	11	7	1	124
February .	6	3	11	4	3	4	21	15	1	...	5	7	3	8	9	10	2	112
March	8	7	14	8	13	2	12	7	8	5	6	4	3	6	12	8	1	124
April ...	3	...	2	4	11	1	12	13	4	7	13	23	16	3	5	3	...	120
May	2	3	9	...	16	7	14	3	4	1	15	7	15	10	13	4	1	124
June	5	7	10	3	16	5	3	1	4	1	2	6	8	10	26	11	2	120
July	1	2	2	1	1	1	...	2	...	2	12	35	32	15	13	5	...	124
August	3	4	3	...	1	...	1	1	1	1	12	26	21	12	23	4	11	124
September	4	6	10	9	19	7	8	11	...	...	4	2	15	3	9	8	5	120
October ...	2	6	8	1	3	2	6	14	11	13	25	13	5	6	6	2	1	124
November	4	18	16	4	2	...	4	4	6	4	15	7	8	6	15	7	...	120
December	4	6	2	10	16	3	19	15	2	6	10	3	8	4	12	4	...	124
Totals ...	42	63	87	44	105	34	110	103	48	55	133	147	145	93	154	73	24	1,460



APPENDIX TABLES.



TABLE I.—VITAL STATISTICS (RESIDENTS ONLY).

Year.	Population estim'td to Middle of each year	BIRTHS.		TOTAL DEATHS.				Deaths in Public Institutions in District.	Deaths of Non- Residents register- ed in District.	Deaths of Resi- dents Registered beyond district.	Nett Deaths at all ages belonging to the District.	
		Number.	Rate*	Under 1 year of age		Gross Deaths. at all ages.					Number.	Rate*
				Number.	Rate per 1000 Births registered	Number.	Rate*					
1	2	3	4	5	6	7	8	9	10	11	12	13
1899	48,200	1,318	27.34	243	184	862	17.88	27	150	22	712	14.77
1900	50,166	1,268	25.27	204	161	851	16.96	49	131	26	720	14.35
1901	50,750	1,162	22.90	195	168	847	16.69	47	131	23	716	14.11
1902	52,174	1,250	23.96	154	123	796	15.26	45	117	24	679	13.01
1903	53,015	1,218	22.97	165	135	804	15.17	50	121	30	683	12.88
1904	54,338	1,170	21.53	199	170	802	14.76	33	128	28	674	12.40
1905	55,712	1,131	20.30	153	135	809	14.52	52	129	29	680	12.21
1906	57,115	1,023	17.91	143	140	812	14.22	44	109	33	703	12.31
1907	58,431	1,057	18.09	119	113	788	13.49	54	111	36	677	11.59
1908	59,741	1,048	17.54	144	137	881	14.75	60	120	34	761	12.74
Averages for years 1899-1908.	53,964	1,165	21.78	172	147	825	15.37	46	125	29	701	13.04
1909	61,450	1,026	16.70	114	111	864	14.06	79	85	31	779	12.68

* Rates in Columns 4, 8, and 13, calculated per 1,000 of estimated population.

NOTE.—Column 7 includes the deaths of all Residents occurring either within or without the District, and of all Visitors dying within the District. Column 11 includes deaths of Blackpool Residents in Kirkham Workhouse and elsewhere without the Borough.

TABLE II.

Vital Statistics in Wards (Residents only).

Names of Localities.	1.—CLAREMONT.				2.—TALBOT.				3.—BANK HEY.				4.—BRUNSWICK.				5.—FOXHALL.				6.—WATERLOO.				7.—KIRKHAM WORKHOUSE.			
	Population estimated to middle of each year.	Births registered	Deaths at all ages	Deaths under one year.	Population estimated to middle of each year.	Births registered	Deaths at all ages	Deaths under one year.	Population estimated to middle of each year.	Births registered	Deaths at all ages	Deaths under one year.	Population estimated to middle of each year.	Births registered	Deaths at all ages	Deaths under one year.	Population estimated to middle of each year.	Births registered	Deaths at all ages	Deaths under one year.	Population estimated to middle of each year.	Births registered	Deaths at all ages	Deaths under one year.	Births registered	Deaths at all ages	Deaths under one year.	
1899	8,104	188	89	15	10,996	343	190	69	2,126	24	26	6	6,744	174	107	40	13,432	379	192	66	6,798	199	88	32	—	—	—	
1900	8,749	180	87	17	11,317	345	185	47	1,926	24	18	1	6,907	165	112	30	14,052	384	230	73	7,215	170	88	21	—	—	—	
1901	8,036	177	107	23	12,349	293	202	51	1,910	23	25	5	7,429	164	99	21	14,337	363	197	57	6,689	142	86	24	—	—	—	
1902	8,658	199	85	22	12,320	320	190	47	1,905	25	28	1	7,765	147	95	12	14,695	387	203	53	6,831	172	78	13	—	—	—	
1903	8,908	171	107	26	12,445	344	188	53	1,920	22	26	3	7,833	146	84	11	14,859	396	175	50	7,050	139	103	15	—	—	—	
1904	9,241	179	100	26	12,458	325	177	56	1,927	26	30	6	8,153	135	90	22	15,270	355	194	54	7,289	150	83	24	—	—	—	
1905	9,454	162	107	28	12,538	322	183	36	1,914	23	13	1	8,421	114	86	17	15,554	372	219	54	7,531	138	72	8	—	—	—	
1906	9,619	143	108	20	12,667	260	179	39	1,889	18	22	2	8,946	133	107	22	16,300	334	196	40	7,694	135	91	11	—	—	—	
1907	9,886	165	99	17	12,723	257	132	21	1,939	23	23	8	9,391	129	119	18	16,694	337	207	38	7,798	146	97	15	—	—	—	
1908	10,310	143	110	15	12,869	264	191	41	1,883	16	19	—	9,668	150	116	18	17,030	337	223	40	7,972	138	102	20	—	—	—	
Averages for years 1899-1908	9,097	171	100	21	12,268	307	182	46	1,934	22	23	3	8,126	146	102	21	15,253	364	204	53	7,287	153	89	18	—	—	1	
1909	10,976	160	136	16	13,047	267	207	30	1,790	16	20	2	9,929	149	126	20	17,612	317	206	27	8,096	117	84	11	—	—	—	

TABLE III.

VITAL STATISTICS for Wards.—RESIDENTS ONLY.

WARD.	Population, 1909.	Birth Rate.			Death Rate.			Zymotic Rate.		
		1908	1909	1896 to 1900	1901 to 1905	1908	1909	1896 to 1900	1909	1901 to 1905
Claremont.....	10,976	13.87	14.58	23.19	20.14	10.67	12.39	11.12	11.46	1.41
Talbot	13,047	20.51	20.46	32.04	25.82	14.84	15.87	17.39	15.14	1.94
Bank Hey	1,790	8.50	8.94	13.69	12.43	10.09	11.17	11.18	12.74	0.73
Brunswick	9,929	15.52	15.01	24.50	17.95	12.00	12.69	15.57	11.51	1.05
Foxhall	17,612	19.78	18.00	28.16	25.00	13.09	11.70	14.43	13.17	1.29
Waterloo	8,096	17.30	14.45	23.74	21.01	12.79	10.38	12.84	11.97	0.99

TABLE VII. (Being Table V. of the Local Government Board).

INFANTILE MORTALITY during the year 1909. Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.	Under 1 Year.																							
	1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	7th Day	Under 1 Week	1-2 Weeks	2-3 Weeks	3-4 Weeks	Total under 1 month	1-2 Months	2-3 Months	3-4 Months	4-5 Months	5-6 Months	6-7 Months	7-8 Months	8-9 Months	9-10 Months	10-11 Months	11-12 Months	Total Deaths under 1 Year.
All Causes { Certified ... Uncertified...	18	6	2	1	2	1	...	30	2	5	2	39	15	8	11	7	9	1	...	3	1	8	5	109
COMMON INFECTIOUS DISEASES—																								
Small-pox...
Chicken-pox
Measles
Scarlet Fever
Diphtheria (including Membranous Croup)
Whooping Cough
DIARRHOEAL DISEASES—																								
Diarrhoea, all forms	1	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Enteritis, Muco-enteritis, Gastro-enteritis	3	...	...	...	...	...	...	...	...	...	...
Gastritis, Gastro-intestinal Catarrh	1	...	...	...	...	...	...	...	...	...
WASTING DISEASES—																								
Premature Birth	2	...	26	2	...	...	...	...	...	...	...	...	...	...	...
Congenital Defects	1	...	...	...	...	...	...	...	...	...
Injury at Birth
Want of Breast-milk, Starvation
Atrophy, Debility, Marasmus
TUBERCULOUS DISEASES—																								
Tuberculous Meningitis
Tuberculous Peritonitis: Tabes Mesenterica
Other Tuberculous Diseases
Erysipelas
Syphilis
Rickets
Meningitis (not Tuberculous)
Couvsulsions
Bronchitis
Laryngitis
Pneumonia
Suffocation, overlying
Other Causes
OTHER CAUSES.	19	6	2	1	2	1	...	31	2	5	2	40	15	8	12	7	10	1	1	3	4	8	5	114

Births in the year—Legitimate, 943; Illegitimate, 83=1,026. Deaths from all Causes at all Ages, 856. Population estimated to middle of 1909, 61,450. Deaths in the year of—Legitimate Infants, 101; Illegitimate Infants, 13.

TABLE VIII.

Length of Residence of Persons who died in Blackpool during the year 1909.

AGE GROUP.	Deaths.	LENGTH OF RESIDENCE IN BLACKPOOL.														Born in B'pool.	
		7 days and under.	14 to 7 days	1 month to 14 days.	3 months to 1 month.	6 months to 3 months.	9 months to 6 months.	12 months to 9 months.	2 to 1 year.	3 to 2 years	4 to 3 years	5 to 4 years	15 to 5 years	25 to 15 years	Over 25 years		Indefinite.
Under twelve months	114	4	1	...	5	2	1	...	...	...	...	...	...	...	...	...	101
1 year and under 5	56	3	...	...	5	3	1	...	8	2	1	...	...	...	...	...	33
5 years and under 15	45	...	...	...	2	...	...	...	3	1	3	...	4	...	...	...	32
15 years and under 25	32	1	1	...	1	...	...	1	1	1	1	5	9	1	...	...	10
25 years and under 65	369	13	7	11	8	3	6	1	12	19	12	13	121	60	56	...	27
65 years and over	248	4	4	5	8	5	1	1	7	10	7	5	66	36	84	...	5
Totals	864	25	13	16	29	13	9	3	31	33	24	23	200	97	140	...	208

TABLE X.

Deaths from Various Causes for 10 Years. (RESIDENTS ONLY.)

CAUSES.	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
	50,166	50,750	52,174	53,015	54,338	55,712	57,115	58,431	59,741	61,450
Measles	2	4	11	5	10	3	7	1	14	5
Scarlet Fever.....	7	15	5	8	5	6	2	4	4	12
Whooping Cough	17	10	3	19	2	3	6	5	10	6
Diphtheria and Membranous Croup ..	5	31	17	5	13	11	11	10	9	23
Enteric Fever	19	12	12	8	5	6	6	9	7	6
Phthisis	33	37	45	39	47	51	39	50	47	45
Other forms Tuberculosis	10	21	21	12	17	21	27	22	17	17
Epidemic Influenza	25	2	3	9	1	10	14	11	12	19
Diarrhoea	49	35	9	23	35	27	32	9	23	9
Cancer	47	54	47	52	41	54	54	52	51	59
Premature Birth and Congenital Defects.	31	22	35	33	34	42	35	21	35	33
Senile Decay	18	20	26	35	27	26	34	36	50	36
Apoplexy	40	34	35	35	35	42	46	51	70	42
Convulsions	10	7	9	6	14	8	9	10	8	8
Other diseases of Nervous System	23	21	29	19	24	26	29	34	22	27
Valvular and other Diseases of Heart ..	60	65	58	75	55	67	62	56	76	89
Bronchitis	45	45	47	38	39	33	31	55	47	77
Pneumonia	79	52	47	50	52	49	51	55	54	45
Diseases of Digestive System	49	52	47	54	51	50	45	51	50	51
Nephritis and Bright's Disease	20	15	20	22	12	26	29	26	28	37
Deaths from Violence	12	20	21	18	32	21	28	17	22	23
Debility, &c.	38	40	32	27	38	13	14	13	15	20

TABLE XI.

VITAL STATISTICS of Whole District during 1909 and previous years (Residents and Visitors).
(Being Table I. of the Local Government Board).

Year	Population estim'd to Middle of each year	BIRTHS.		TOTAL DEATHS REGISTERED IN DISTRICT.			Deaths of Non-Residents registered in Public Institutions in District.				Deaths of Residents registered in Public Institutions beyond the District.		Nett Deaths at all ages belonging to the District.	
		Number.	Rate.*	Under 1 year of age.		At all Ages.		Deaths of Non-Residents registered in Public Institutions	in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Rate.*	Number.	Rate.*	13
				Number.	Rate per 1000 Births registered.	Number.	Rate.*							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1899	48,200	1,318	27.34	243	184	840	17.4	27	9	22	853	17.70	16	17
1900	50,166	1,268	25.27	204	161	825	16.44	49	9	26	842	16.78	16	17
1901	50,750	1,162	22.90	195	168	824	16.24	47	11	23	836	16.47	16	17
1902	52,174	1,250	23.96	154	123	772	14.80	45	16	23	779	14.93	14	15
1903	53,015	1,218	22.97	165	135	774	14.60	50	13	27	788	14.86	14	15
1904	54,338	1,170	21.53	198	169	774	14.24	33	6	26	794	14.61	14	15
1905	55,712	1,131	20.30	152	134	780	14.00	52	16	29	793	14.23	14	15
1906	57,115	1,023	17.91	142	139	779	13.64	44	16	27	790	13.83	13	14
1907	58,431	1,057	18.09	119	113	† 747	12.78	54	17	33	763	13.06	13	14
1908	59,741	1,048	17.54	144	137	847	14.18	60	14	32	865	14.48	14	15
Averages for years 1899-1908.	53,964	1,165	21.78	172	146	796	14.83	46	13	27	810	15.10	15	16
1909	61,450	1,026	16.70	114	111	833	13.56	79	8	31	856	13.93	14	15

† This figure excludes 5 deaths from drowning of temporary visitors.

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

NOTE.—The deaths included in Column 7 of this Table are the whole of those registered during the year as having actually occurred within the District or Division. The deaths included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the District on account of sickness or infirmity, and have died in public institutions elsewhere.

TABLE XII.

Vital Statistics of Separate Localities in 1909 and previous years (Residents and Visitors). (Being Table II. of the Local Government Board).

Names of Localities.	1.—CLAREMONT.				2.—TALBOT.				3.—BANK HEY.				4.—BRUNSWICK.				5.—FOXHALL.				6.—WATERLOO.				7.—KIRKHAM WORKHOUSE.			
	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.	Population esti- mated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under one year.
Year.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.	a.	b.	c.	d.
1899	8,104	188	114	15	10,996	343	213	76	2,126	24	40	6	6,744	174	130	42	13,432	379	226	70	6,798	199	110	34	—	—	—	—
1900	8,749	180	114	19	11,317	345	199	48	1,926	24	24	2	6,907	165	135	34	14,052	384	262	78	7,215	170	108	23	—	—	—	—
1901	8,036	177	135	27	12,349	293	226	54	1,910	23	28	5	7,429	164	120	22	14,337	363	223	62	6,689	142	104	25	—	—	—	—
1902	8,658	199	110	23	12,320	320	204	50	1,905	25	32	1	7,765	147	100	12	14,695	387	237	54	6,831	172	96	14	—	—	—	—
1903	8,908	171	126	26	12,445	344	202	56	1,920	22	34	3	7,833	146	102	13	14,859	396	211	52	7,050	139	113	15	—	—	—	—
1904	9,241	179	134	27	12,458	325	198	59	1,927	26	38	8	8,153	135	108	22	15,270	355	217	56	7,289	150	99	26	—	—	—	—
1905	9,454	162	131	28	12,538	322	196	36	1,914	23	19	1	8,421	114	104	18	15,854	372	248	58	7,531	138	95	11	—	—	—	—
1906	9,619	143	132	20	12,667	260	187	40	1,889	18	28	3	8,946	133	124	25	16,300	334	219	43	7,694	135	100	11	—	—	—	—
1907	9,886	165	125	17	12,723	257	144	21	1,939	23	27	8	9,391	129	136	19	16,694	337	224	39	7,798	146	107	15	—	—	—	—
1908	10,310	143	142	18	12,869	264	201	42	1,883	16	23	—	9,568	150	136	18	17,039	337	248	42	7,972	138	115	24	—	—	—	—
Averages for years 1899-1908	9,097	171	126	22	12,268	307	197	48	1,934	22	29	4	8,126	146	120	23	15,253	364	232	55	7,287	153	105	20	—	1	2	—
1909	10,976	160	152	16	13,047	267	220	30	1,790	16	25	2	9,929	149	140	20	17,612	317	225	27	8,096	117	94	11	—	—	—	—

Deaths of Residents occurring in Public Institutions beyond the District are included in Sub-columns c of this Table, and those of Non-residents registered in Public Institutions in the District excluded. (See Note on Table XI. as to meaning of terms " Resident " and Non-resident.")

Deaths of Residents occurring in Public Institutions, whether within or without the District, are allotted to the respective localities according to the addresses of the deceased.

TABLE XIII.

Cases of Infectious Disease notified during the Year 1909.
(Table III. of the Local Government Board.)

NOTIFIABLE DISEASE.	Cases notified in whole district.						Total cases notified in each locality.						No. of cases removed to Hospital from each locality.								
	At all ages	At ages—Years					Claremont.	Talbot—(H).	Bank Hey	Brunswick	Foxhall	Waterloo	Total	Claremont	Talbot—(H).	Bank Hey	Brunswick	Foxhall	Waterloo	Total cases re-moved to Hospital.	
		Under 1.	1 to 5	5 to 15	15 to 25	25 to 65.															65 and upwards.
Small-pox																					
Cholera																					
Diphtheria (including Membranous croup)...	96	1	28	55	5	6	1	19	16	3	17	27	14	96	13	10	2	10	20	11	66
Erysipelas.....	38	1	.....	2	2	30	3	3	11	2	8	11	3	38	.....	2	.....	.....	.....	.....	2
Scarlet Fever.....	348	4	64	245	23	12	.....	57	62	8	56	135	30	348	48	57	6	49	108	19	287
Typhus Fever																					
Enteric Fever	48	.....	1	12	6	28	1	2	9	.....	8	26	3	48	2	8	.....	7	19	2	38
Relapsing Fever																					
Continued Fever																					
Puerperal Fever	4	.....	.....	.....	.....	4	.....	1	2	.....	.....	1	.....	4	.....	.....	.....	.....	.....	.....
Plague																					
Measles	834	35	389	380	16	14	.....	94	247	22	116	299	56	834	2	8	1	4	6	2	23
Totals	1368	41	482	694	52	94	5	176	347	35	205	499	106	1368	65	85	9	70	153	34	416

NOTE.—Mark (H) is the locality in which the Isolation Hospital is situated.

TABLE XIV. (Being Table IV. of the Local Government Board).

Causes of, and Ages at, Death during Year 1909.

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CAUSES OF DEATH.	Deaths at the subjoined ages of "Residents" whether occurring in or beyond the district.					Deaths at all ages of "Residents" belonging to Localities, whether occurring in or beyond the District.							Total Deaths whether of "Residents" or "Non-Residents" in Public Institutions in the District.		
	All ages	Under 1 year	1 and under 5.	5 and under 15	15 and under 25	25 and under 65	65 and upwards	Claremont Ward.	Talbot Ward.	Bank Hey Ward.	Brunswick Ward.	Foxhall Ward.		Waterloo Ward.	Total.
Small-pox...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles...	5	...	4	1	...	...	...	...	1	...	...	4	...	5	...
Scarlet Fever...	12	1	3	8	...	...	...	3	3	...	...	5	1	12	9
Whooping-cough...	7	3	4	...	...	...	...	...	5	1	1	...	...	7	...
Diphtheria (including Membranous Croup)	24	1	12	9	...	1	1	1	7	...	7	4	5	24	14
Croup	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Typhus...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric...	8	...	...	1	2	5	...	...	1	...	...	5	2	8	6
Fever { Other continued	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic influenza	20	...	...	1	2	11	6	1	5	3	4	5	2	20	2
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea	7	5	...	...	...	1	1	1	...	...	2	3	1	7	...
Enteritis	6	4	1	...	...	1	...	1	2	...	...	3	...	6	...
Gastritis	4	2	...	...	...	...	2	1	1	...	...	1	1	4	...
Puerperal Fever	3	...	...	...	...	3	...	...	2	...	...	1	...	3	...
Erysipelas...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phthisis (Pulmonary Tuberculosis)	51	...	1	1	4	39	6	7	15	1	6	19	3	51	...
Other tuberculous diseases	18	4	3	5	2	3	1	3	2	2	1	12	...	18	1
Cancer, malignant disease	61	1	...	...	1	44	15	14	14	3	9	15	6	61	6
Bronchitis...	85	13	6	...	1	21	44	12	34	...	13	15	11	85	1
Pneumonia	53	3	3	5	5	30	7	9	16	1	9	16	2	53	2
Pleurisy	5	...	...	...	...	4	1	...	3	1	...	1	...	5	1
Other diseases of respiratory organs	15	...	2	1	1	9	2	4	7	...	2	...	2	15	1
Alcoholism, cirrhosis of liver...	12	...	...	...	...	11	1	1	3	...	3	3	2	12	1
Veneral diseases	2	1	...	...	...	1	...	2	...	...	...	...	...	2	...
Premature birth...	28	28	...	...	...	...	...	4	8	...	8	5	3	28	...
Diseases and accidents of parturition	2	...	...	...	...	2	...	...	1	...	...	1	...	2	...
Heart diseases...	96	1	...	...	...	44	46	19	16	3	17	29	12	96	4
Accidents...	22	2	4	1	1	9	5	3	8	1	1	4	5	22	7
Suicides	6	...	...	...	...	6	...	2	...	...	2	2	...	6	1
All other causes	304	45	12	10	9	121	107	64	66	11	55	72	36	304	23
All causes	856	114	55	44	32	366	245	152	220	25	140	225	94	856	79

TABLE XIX.

Table giving the total number of Births and Deaths (Residents and Visitors) with their corresponding rates in each quarter of the year 1909:—

Quarter ending	Births.	Birth Rate.	Deaths.	Death Rate.	Deaths under one year.	Infant Mortality.	Seven Principal Zymotic Diseases	Zymotic Rate
3rd April.....	282	18.41	262	17.11	33	117.02	13	0.85
3rd July	265	17.31	212	13.85	21	79.25	22	1.44
2nd October	253	16.52	194	12.67	23	90.91	15	0.98
1st January, 1910 ...	226	14.76	196	12.80	37	163.72	21	1.37
Year	1,026	16.70	864	14.06	114	111.11	71	1.16

TABLE A.
ANALYSIS OF MORTALITY (Residents and Visitors).

YEAR.	BIRTH RATE.	Annual rate of Mortality from							Proportion of Deaths under 1 year to 1,000 births (Infant Mortality).	Of Infants under 1 year.	Percentage of Total Deaths.					
		All Causes (gross D.R.)	All Causes (Corrected for Visitors).	Seven principal Zymotics.	Pulmonary Consumption.	Other Diseases of Respiratory Organs.*	Diseases of Circulatory System.†	Under 5 years.			65 years and over.	From seven principal Zymotics.	From Pulmonary Consumption.	From other Diseases of Respiratory Organs.	From Diseases of Circulatory System.	
1886-90	25.18	17.6	15.4	2.11	1.21	3.19	1.40	150.0	21.5	34.3	20.8	12.3	6.9	18.3	8.1	
1891-95	23.91	18.6	15.3	2.06	1.14	3.91	1.51	183.3	23.82	33.8	18.9	10.88	6.24	20.74	8.2	
1896-1900	26.46	17.52	14.42	2.50	1.12	3.21	1.50	174.9	26.35	35.4	19.2	14.25	6.39	18.23	8.56	
1901-1905	22.33	15.28	12.92	1.53	1.04	2.22	1.55	146.37	21.32	29.81	21.02	9.91	6.86	14.50	10.15	
1891	22.36	20.0	18.2	2.03	1.2	5.4	1.60	192.6	21.5	34.1	20.1	10.2	6.3	27.0	8.1	
1892	24.01	18.2	15.3	0.89	1.2	3.81	1.49	160.4	20.9	29.3	20.9	4.9	6.7	20.9	8.2	
1893	22.47	18.7	14.9	2.68	0.98	4.14	1.51	210.3	25.1	33.2	18.6	14.1	5.2	22.1	8.0	
1894	23.93	15.8	11.9	1.38	1.08	2.21	1.48	159.8	24.1	33.2	17.3	8.7	6.8	13.9	9.3	
1895	26.77	20.06	16.33	3.31	1.24	3.98	1.43	206.0	27.49	39.3	17.4	16.47	6.19	19.76	7.10	
1896	25.66	17.19	13.84	1.99	1.15	3.06	1.44	158.5	23.6	32.9	21.3	11.6	6.6	17.7	8.4	
1897	26.25	18.57	15.29	2.78	1.07	3.75	1.62	191.3	27.0	37.8	18.0	15.0	5.8	20.1	8.7	
1898	27.74	16.99	13.85	2.99	1.14	3.04	1.41	177.7	29.0	37.3	19.4	17.62	6.73	17.87	8.3	
1899	27.34	17.88	14.77	2.75	1.36	3.15	1.39	184.4	28.19	36.5	18.1	15.42	7.65	17.63	7.77	
1900	25.27	16.96	14.35	2.23	0.88	3.03	1.63	160.88	23.97	32.55	19.15	13.16	5.17	17.86	9.63	
1901	22.90	16.69	14.11	2.38	0.97	2.62	1.62	167.81	23.02	32.59	18.42	14.29	5.79	15.70	9.68	
1902	23.96	15.26	13.01	1.23	1.07	2.43	1.51	123.2	19.35	27.70	20.23	8.04	7.04	15.95	9.92	
1903	22.97	15.17	12.88	1.47	1.00	2.15	1.83	135.47	20.52	28.48	23.26	9.70	6.59	14.18	12.06	
1904	21.53	14.76	12.40	1.40	1.05	2.10	1.21	170.09	24.81	33.79	19.33	9.48	7.11	14.21	8.23	
1905	20.30	14.52	12.21	1.17	1.13	1.81	1.58	135.28	18.91	26.45	23.98	8.03	7.79	12.48	10.88	
1906	17.91	14.22	12.31	1.23	0.91	1.86	1.28	139.78	17.61	25.37	23.05	8.62	6.40	13.05	8.99	
1907	18.09	13.49	11.59	0.70	1.04	2.29	1.39	112.58	15.10	21.70	26.90	5.20	7.74	17.01	10.28	
1908	17.54	14.75	12.74	1.26	0.92	1.92	1.69	137.40	16.34	22.36	27.70	8.51	6.24	13.05	11.46	
1909	16.70	14.06	12.68	1.16	0.83	2.60	1.71	111.11	13.19	19.68	28.70	8.22	5.90	18.52	12.15	

* Up to 1900 only deaths from Pneumonia, Bronchitis, and Pleurisy were included.

† Up to 1900 only Valvular and other diseases of Heart were included.

TABLE B.

Births and Deaths (Residents) in Each Quarter of the Year 1909 :—

Quarter Ending.	Births.	Deaths from all causes.	Seven principal Zymotic Diseases	Pulmonary Consumption.	Other Diseases of Respiratory System	Diseases of Circulatory System.	Total Deaths under 1.	Under 5 years	65 years and over.
3rd April	282	250	11	13	53	39	31	45	74
3rd July	265	183	18	10	38	24	19	30	57
2nd October	253	159	11	11	18	14	20	29	41
1st January, 1910	226	187	21	11	31	20	36	52	51
YEAR	1,026	779	61	45	140	97	106	156	223

TABLE C.

Showing the several Death Rates (Residents) for each quarter of the year 1909 :—

Quarter ending.	Death Rate.		Birth Rate	Infant Mortality	Per cent. of Total Deaths of Deaths			
	From all causes.	From 7 Zymo-tics			From 7 Zymo-tics.	Of Infants under 1 year.	Of Chil-dren under 5 years.	Of Persons 65 years and over.
3rd April	16.33	0.72	18.41	109.93	4.40	12.40	18.00	29.60
3rd July	11.95	1.18	17.31	71.70	9.84	10.38	16.39	31.15
2nd October	10.39	0.72	16.52	79.05	6.92	12.58	18.24	25.79
1st January, 1910.	12.21	1.37	14.76	159.29	11.23	19.25	27.81	27.27

TABLE D (Residents only).

Showing the proportion of deaths of children under one, of children under five, and of persons over 65 years of age, to total deaths.

YEAR.	NUMBER OF DEATHS.					PERCENTAGE OF TOTAL DEATHS OF DEATHS.		
	Total Deaths.	Under one year of age.	Under 5 years of age.	65 years and over.	From 7 Zymotics.	Under one year of age.	Under 5 years of age.	65 years and over.
1893.....	421	123	158	76	63	29.22	37.53	18.05
1894.....	361	96	134	68	31	26.59	37.12	18.84
1895.....	538	169	232	94	93	31.41	43.12	17.47
1896.....	507	137	182	117	61	27.02	35.90	23.08
1897.....	614	178	249	115	95	28.99	40.55	18.73
1898.....	629	206	260	120	113	32.75	41.34	19.08
1899.....	712	228	289	124	114	32.02	40.59	17.42
1900.....	720	189	251	144	99	26.25	34.86	20.00
1901.....	716	181	251	135	107	25.28	35.06	18.85
1902.....	679	148	208	132	57	21.80	30.63	19.44
1903.....	683	158	212	159	71	23.13	31.04	23.28
1904.....	674	188	251	130	70	27.89	37.24	19.29
1905.....	680	144	197	158	56	21.18	28.97	23.24
1906.....	703	134	192	171	64	19.06	27.31	24.32
1907.....	677	117	162	188	38	17.28	23.93	27.77
1908.....	761	134	183	218	67	17.61	24.05	28.65
1909.....	779	106	156	223	61	13.61	20.03	28.63

TABLE E.

	Estimated Population.	Rate per 1,000.				Total Births.	Total Deaths.	Total Infant Mortality.
		Births.	Deaths.		Seven Zymotics.			
			Gross.	Corrected for Visitors.				
1879.....	15,000	36.6	17.8	...	3.06	401	268	122
1880.....	15,000	34.0	22.7	...	5.0	510	341	206
1881.....	14,229	30.6	18.6	15.8	1.2	436	265	126
1882.....	16,000	30.0	22.9	21.0	2.8	480	367	221
1883.....	16,000	30.0	19.5	16.6	1.6	480	312	140
1884.....	17,212	29.8	19.0	17.1	2.14	513	328	146
1885.....	18,031	27.4	17.2	15.2	1.71	494	311	174
1886.....	19,550	25.9	18.9	16.5	2.71	508	370	152
1887.....	20,380	25.3	16.0	14.0	2.45	516	327	116
1888.....	20,540	24.5	15.6	13.2	1.65	504	322	137
1889.....	21,661	26.5	18.7	16.5	1.9	575	406	169
1890.....	24,312	23.7	18.5	16.5	1.9	577	451	182
1891.....	25,310	22.3	20.0	18.2	2.03	566	507	193
1892.....	26,740	24.0	18.2	15.2	0.90	642	488	160
1893.....	28,389	22.4	18.7	14.8	2.64	638	532	210
1894.....	30,337	23.9	15.8	11.9	1.38	726	481	160
1895.....	32,943	26.7	20.06	16.33	3.31	882	661	206
1896.....	36,638	25.7	17.19	13.84	1.99	940	630	159
1897.....	40,234	26.25	18.54	15.26	2.78	1,056	746	191
1898.....	45,414	27.74	16.99	13.85	2.99	1,260	772	178
1899.....	48,200	27.34	17.88	14.77	2.75	1,318	862	184
1900.....	50,166	25.27	16.96	14.35	2.23	1,268	851	161
1901.....	50,750	22.90	16.69	14.11	2.38	1,162	847	168
1902.....	52,174	23.96	15.26	13.01	1.23	1,250	796	123
1903.....	53,015	22.97	15.17	12.88	1.47	1,218	804	135
1904.....	54,388	21.53	14.76	12.40	1.40	1,170	802	170
1905.....	55,712	20.30	14.52	12.21	1.17	1,131	809	135
1906.....	57,115	17.91	14.22	12.31	1.23	1,023	812	140
1907.....	58,431	18.09	13.49	11.59	0.70	1,057	788	113
1908.....	59,741	17.54	14.75	12.74	1.26	1,048	881	137
1909.....	61,450	16.70	14.06	12.68	1.16	1,026	864	114